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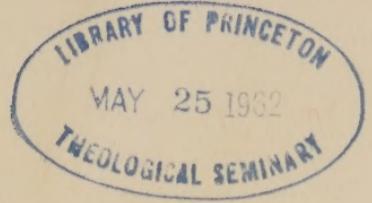
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# God and World Order





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## A Study of Ends in Nature

BY LEO R. WARD ✓

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# Contents

1	Introduction: On “Purpose” . . . . .	1
2	Plato on Cosmic Purpose . . . . .	14
3	Aristotle on Nature and End . . . . .	28
4	What Is Final Cause? . . . . .	42
5	Instances of Final Cause . . . . .	53
6	The Universality of Final Cause . . . . .	68
7	Order, Purpose and God . . . . .	81
8	Order, Purpose and God (CONTINUED) . . . . .	95
9	Final Cause in the New Mechanical Philosophy . . . . .	115
10	On Which Side Is Hume? . . . . .	130
11	How Far Kant Goes . . . . .	144
12	Darwin’s <i>Letters</i> and Purpose . . . . .	163
13	William McDougall’s Teleology . . . . .	176
14	Purpose in Dewey’s Philosophy . . . . .	187
15	A Continuing Problem . . . . .	202
	Index . . . . .	217



1

# Introduction: On “Purpose”

AT least since Socrates, the central figure and concern of any study in philosophy is man. Man is and ought to be central. He has to be. This generalization holds for any old or new study, such as studies made by ancients or moderns on the nature of the polis, on the nature of knowledge and freedom, and the dignity and integrity of the person, on the place of economic goods, on the problem of forms and essences, on problems of pleasure and joy and death. Those who say they may bring into philosophy the problem of how the angels know, must, it seems to us, relate their angelic epistemology in an integral way to human intellectual processes. Whether matter is real or only phenomenal, and whether it alone is real, the basic study of it is intimately relevant to the understanding of ourselves. And so on. Any work in philosophy is by man, and in some way it is of man, and of course it is for man. To cancel the of-man or the for-man reference would be to cancel philosophy.

The question of “purpose” is the question of a mind or some minds engaged in directing things to ends. Obviously men do just that; to live as men we have constantly to be directing things

to ends, and our doing so is a fact and not a question. But as Dewey said, facts ask questions, and man wants, if possible, to know many things regarding this fact and in relation to this fact of human purposing. Is man the only being that so directs things? Does it take a mind to do this, or could it be done by some kind of natural automation? Is nature itself "purposive," intelligently directing itself to ends?

Even to ask the next question we have to use the word "mechanism" or "mechanical," an ambiguous and question-begging word. People ask whether nature itself is a machine, whether it is an incredible "mechanism" which is not a mechanism at all, one which, if perhaps caused, is nevertheless directed by no mind. That is to ask whether nature is simply a machine and yet at the same time not a machine. This inept idea of "mechanism" has been common coin for three hundred years and has plagued philosophy. If the world is known to be a machine, it is already known to have been designed. But that is exactly the question.

Man is always putting direction into his free acts, and in that way he puts "meaning" and "sense" into them and makes them "purposive." Every free and human act affirms purpose; it is a step toward a seen and desired end. Everyone grants this immediate man-purpose. But the real question concerns nature-purpose. Perhaps we have to grant this, too, at least on William James' pragmatic grounds; for whereas Kant claimed that an undesigned world would be radically unintelligible, James claimed that an undesigned world would deflate our "cosmic confidence."

We believe it necessary to give up the *a priori* of Kant and the pragmatism of James on this issue and set out on a lengthy dual inquiry. The basic questions are two: one question is whether nature—nature in man, and nature in "nature"—is tending toward ends; the other is whether nature is guided by any mind.

A common and now routine twentieth-century reply to the two questions is in the negative. It says that nature is tending to no ends and is directed by no mind. This is the reply, usually an assumed position, given by American "naturalism," and necessarily given by "secularism," the theologian's favorite word for naturalism. This was the answer implied in Santayana's works, to take one instance, and it has been implied in American naturalism for more than a generation. Whether a negative or a

positive reply is given to the two questions, it is usually telescoped into a single reply. But the two questions are not obviously one, and while some few American philosophers of the naturalistic group—notably D. W. Gotshalk—begin now to affirm direction to ends in nature, naturalism is certainly not going to affirm divine mind directing nature. If it did, it would not be naturalism.

The second question may be put in the ordinary and yet difficult form: "Has life any meaning—can life have any meaning?" Dewey was asked to give his reply to the question in a form which begs the question: "What is the meaning of life?" He brushed the question off by saying: Life has many meanings—the meanings we put into it. This reply left the question just what and where it was—a question.

Communism is revolutionary secularism or naturalism. It wants to tear down a human world built on the idea that we must respect a given "nature" and go with it; in short, the idea that fundamentally we may not be arbitrary. The Communist would radically force "nature"—hence he makes no bones about brain-washing—and would take both nature and society under his own wing. But something of the same denying and forcing of nature has, we believe, been implicit in much of naturalism. Communism is the prime exhibit of what Jacques Maritain has called a "titanic demonism."

For a moment, consider the second question, about "purpose" in the sense of a mind directing nature. In the Communist and generally in the secularist view, nature has no purpose, and man originally has no purpose but may give to himself and the world whatever purposes he chooses and is able to effect. The group must put "meaning" into a cosmos which eternally had no meaning and presumably will revert to no meaning. In that case, man is in a desperate fix. He is a free and meaningful something between no meaning and no meaning. Bertrand Russell's essay, "A Free Man's Worship"—man must "worship at the shrine his own hands have built"—is a lively expression of the theory that man finds no meaning in the universe, but imposes meanings ad libitum on it.

The naturalist-secularist is in a difficult position. As Krutch said so well in *The Modern Temper*: If life is thought to have

been created, it may be thought to have been created for a purpose; but merely to have come into existence is, in all likelihood, merely to go out of it, also. The secularist's is the monistic and exclusively temporal view of man's purpose. We have purposes, but are dropped down as an epiphenomenon between walls of no-purpose. If we are introverts, we give up, and if extroverts we declare war on nature.

Whether they are freaks or are more or less at home in the universe, men have to declare for purpose. That is the only way they can live; and this is simply to say that they are persons. But to say even that much is to assume that men are at least inchoatively made that way, and therefore the strictly monistic view of purpose is incorrect. Men always hold that there is nature-direction at least in themselves, and they always hold with Aristotle that at least something is "by nature."

As opposed to monistic naturalism, the dualist position is this: Man puts many meanings and purposes into his life—he has to do this. At the same time, man finds nature tending to ends and finds also a purposed world inclusive of himself. Within the purposes of nature is this bent of man to plan and to effect plans, to direct himself and things to ends. But the world is antecedently tending to ends and is even directed by mind to ends. The dualist position is a sort of freak in its own right: direction within direction, meaning within meaning. For those of a strict monistic orthodoxy, this view is a scandal. The dualist may at least claim the advantage that he is not a weary, naturalistic Atlas holding up a meaningless world. He does not feel obliged to seal himself off from the biological world, which is pre-committed to direction, and is not obliged to declare with Bertrand Russell against the world, but has merely to go with the world. At any rate, that is what the dualist says and feels. Man is to plan and effect plans. As a person in a society of persons, that is precisely what he is to do. But he is not to do it independently of all relation to some kind of pattern given in life and the cosmos.

It is much easier to assert a dualist or a monist position than to establish it. Some words of C. S. Lewis who has elsewhere declared at length for some kind of pattern-form within man's nature, show how strikingly the dualist position can be stated:

Surely the issue is plain. Either there is significance in the whole process of things as well as in human activity, or there is no significance in human activity itself. It is an idle dream, at once cowardly and arrogant, that we can withdraw the human soul, as a mere epiphenomenon, from a universe of idiotic force, and yet hope, after that, to find for her some *faubourg* where she can keep a mock court in exile. You cannot have it both ways. If the world is meaningless, then so are we; if we mean something, we do not mean alone.<sup>1</sup>

Man is always poor and he must make his way in fear and trembling in a world which seems to be oblivious of his interests and purposes. Even so, part of Lewis' point is that the monistic secularist makes things tougher and yet more "senseless." This Atlas must go it alone, must mean alone. The devotee of naturalism and secularism is caught in a trap: nature is held to mean nothing; but man, presumed to be one with nature, does mean something; he directs himself and men and things to ends, and thus there is a difficult and impassable "emergent" and hiatus between man and nature. "Non-naturalism" seems to be a better naturalism than is naturalism itself.

Made by mind or made by no mind, man is made for meaning—he is headed that way—and events and doctrines, whether scientific, philosophical or political, that seem to reduce him to cosmic meaninglessness are hard on him. Perhaps he is too proud, too fond of an inflated ego, too much the peacock. But there he is, a something that needs cosmic support and cosmic balm.

All this is far from a proof that the world does have meaning and purpose. If man is the one odd purposive item in a purposeless universe, then that is the way the world is. Man turns out to be a Don Quixote tilting against the windmill of the world. Whatever its truth or untruth, the dualistic view of meaning within meaning is more hopeful. Man's intellect naturally goes for truth and in that sense has aboriginal meaning, and then—perhaps not altogether out of step with God's purpose and nature's consequent purposes—it directs many things and puts

<sup>1</sup> C. S. Lewis, "The Personal Heresy in Criticism" (*Essays and Studies by members of the English Association*, XIX, Oxford, 1934), 7-28. Lewis declares for natural law in *The Abolition of Man* (New York: Macmillan, 1947), 10-12, 28-29, 51-61.

purposes into them. Man's free, meaning-making act remains free; but in the dualist view, it is thought to be within a will-set, a will-tendency to a will-goal, and not to be totally untethered and autonomous. Of course, man belongs to himself and to society and is responsible to himself and to society, but not only to himself and society. The meanings put by man into the life of his intellect and will, and thereby into society, are not the only or original meanings in his being, or in the world.

All of which is merely to say that there are two widely divergent views of this question—the question of whether nature and man-as-nature are backed by any mind in any way directing them. The fact that one view gives man more reason for hope and affords him more comfort, and is thus pragmatically more acceptable, is far from a proof that it is the truth of things. Nor does either view, no matter how comforting or uncomforting, delete the prior question of whether nature, in man and in "nature," tends to ends.

To these fundamental questions—of a possible tending of nature to ends, and a possible mind directing nature—we must return again and again in this book. It will become clear as we proceed that these questions fall primarily within a philosophy of nature and not within a philosophy of history. Answers to them are, or at least they are like, a proemium to a philosophy of history. But any such answers claim to be a reply to questions set by nature, and not to questions set by the exercise of man's freedom and by the products of man's freedom in art, education, the social order, culture and civilization. That is why the present work makes only a meagre use of ideas suggested by some minds remarkable in philosophy of history; minds like Augustine, Bossuet, Hegel, and in our day a mind like Reinhold Niebuhr. The possible direction and "meaning" of nature is one thing, and the possible direction and "meaning" of an exercised freedom and its works is another. Although these two areas of problems are closely related, it seems to us that they should be dealt with one at a time and that problems of nature have the logical and chronological priority.

To get a good look at our pair of questions—a possible tending of nature to ends and a possible direction of nature by mind—and the best answers to them, the succeeding chapters are

going to make a brief report from some great minds and great moments in Western philosophy. We are going to let Plato and then Aristotle wrestle with the problems, each in his own way. Then we shall come to Aquinas for any further word he may have on cause and final cause and "nature" and its conceivable direction by mind. Then we shall make a brief, and no doubt inadequate, review of the questions as they reappear in Descartes and early modern philosophy and some early modern scientists. Then we shall let Hume exhaust himself on the subject. Then we shall let Kant, serious as usual, go hammer and tongs at the questions. Then we shall let Darwin, as a decisive modern scientist, speak in his life and letters, difficult and painful though the "design" part of the subject is to him. Then we shall let William McDougall, "hormic" psychologist and the psychologist most concerned about teleology, affirm and deny as he will. Then we shall let John Dewey, one of the most confirmed naturalistic philosophers of our time, work at exorcizing "purpose" from nature. Finally we shall ask certain prominent biologists of the generation following 1920 to declare themselves, and also see the affirmation of tendency in nature implied in the widespread reaffirmation of natural law.

Such coverage will give the main problems and some subsidiary problems a good airing and also afford a lively panorama of proffered solutions. But it would be impossible for one volume to state in final foolproof detail the replies of all Western philosophy, and we are sorry to have to draw the line short of the replies of men like Peirce, Whitehead and Kierkegaard.

To suggest the relevance of the central problems and their seriousness, we shall conclude this introduction by using materials from a variety of authors. At least in our country the 1920's were, due to some concatenation of events, one of the most heavily pessimistic decades; and into the 1930's people kept asking and kept troubling themselves about "the meaning of life" and "the meaninglessness of life." We were more charged then with a sort of pre-Sartre existentialist and tragic feeling than at a later time, and certainly more than at earlier times. We were full of jeremiads on life and the universe, and it was as if the bottom had dropped out of the "progress" and "success" ideas, so long dominant.

Any time has to ask about "meaning" and "purpose," whether or not conscious of asking. That is what events seem to tell us, and in this we agree with Thomas Mann. This author had his people in *The Magic Mountain* say that, like it as he will and try to hide it as he will, a man has to ask of his time the basic "meaning" or "no meaning" question; man has to ask, and he has to be influenced by whatever answer he receives. The answer, said Mann, is "meaning" or "no meaning," or a "hollow silence."

The question evidently was troubling us in the late 'twenties and through the 'thirties. Besides the work of Krutch's mentioned earlier, a work on life's meaning was contributed by pundits and popular writers, its materials first running in the old *Forum*—a "magazine of controversy"—and then published in the volume, *Living Philosophies*. Manifestly suffering, Theodore Dreiser replied: Why do they ask me? How should I know—the question itself is a torture! He must write then, he said, on the "summation of my lack of beliefs and faiths." He said he had long thought and prayed over the problem. "I have pondered and even demanded of cosmic energy to know *Why*." In the main he disbelieved in purpose, but not without doubts and misgivings: "seeing for oneself what appears to be intention, direction, order, intelligence," which, he seemed to have thought, argue to a directive mind. On the other hand, he said he found men cruel, lustful and envious, and he thought life an illusion, an elusive, escaping thing, "the most amazing fanfare." He wanted it all to be simple and legible, and it turned out to be heterogeneous and maddening. What he said he saw was kaleidoscopic: birth and death, murder, the chase, life living on life; "and beauty, beauty, beauty . . . as I have said, there is no *Why*, only a *How*—and the ultimate basis of the *How* not known! . . . But no absolute truth. . . . A dour credo? It is all I have to offer. All I have ever intelligently accepted. . . . Good God—surely in the face of all this sense of aliveness and motion there should be some intimation of *Why*. But no—none. . . . Is it by any chance the best" that cosmic energy can do? Dreiser went on to cite some earlier verses of his:

Yet I ask and ask, and ask.  
I pray—by God—  
On my knees.

I lift up my hands to know.  
Yet you do not answer . . .  
Are you helpless  
Like myself?

He concluded with the refrain: "In short, I catch no meaning from all I have seen, and pass quite as I came, confused and dismayed."

In *Aaron's Rod*, D. H. Lawrence presented two characters struggling against the idea of plans and ends in nature. One man said: "He was not moving *towards* anything" but away from everything; there was "nothing ahead: no plan, no prospect." One counselled the other: "There's no goal outside yourself. . . . There's no goal outside yourself. Your own single oneness is your destiny. Your destiny comes from within." One said: "I'm sick of seekers. I hate a seeker. . . . The grinding of the old millstones of love and God is what ails us. . . . There is no goal. I loathe goals more than any other impertinence. Goals, they are. Bah—jails and jailers! Goals and goalers." The two at last agreed: "Wherever you go, you'll find people with their noses tied to some goal." "Their wagon hitched to a star which goes round and round like an ass. Be damned to it."

The poet Jacques Rivièrē put the problem better than Lawrence or Dreiser and perhaps better than he knew. He asked Claudel (in a letter) why there must be some meaning in the world? Why could not the universe be meaningless? Why could not the universe itself be a meaningless farce played out by nothingness? Driven to the extreme reached by Rivièrē, the question about "the meaningless" seems to be nonsense.

These men are fair samples—Dreiser, Lawrence, Rivièrē. They show how hard it is to get rid of the question. Bergson said that the doctrine of final causes will never be defeated; if it is knocked down in one form, he said, it will spring up in another. We shall see reason to believe that Bergson's statement is true. But even more hardy and perennial is the other question, that of a mind's possibly directing, and it was with this question that Dreiser and Rivièrē were concerned. This is always a fundamental human concern: Is man to "mean" something, to be of some significance, or at last to be of no importance in nature and the universe? This question is closer and more obvious to

us, although men in asking it may be unconsciously assuming an answer to the other question about nature's having or not having tendencies to ends.

It is hard to drop the cosmic-meaning question. Nature, and man as nature, "mean" something or they don't. This says that they are directed toward ends by some kind of mind—at least by mind, and therefore at least by a person or persons, and presumably beneficially directed—or they are not directed. If directed by mind, then the world or nature has "meaning" and is "meaningful"; it has "purpose" and is "purposeful." That is the way in which the words "meaning" and "purpose" are used in this book. Each is hard to drop—first, the question of whether there is "meaning," and secondly the positive answer that there is "meaning." It will not do to hedge on the question whether life and the world have any purpose, and say that men have many purposes. That is obvious and is not at all the question.

The stormy Russian philosopher, Nicholas Berdyaev, said nature would appear to be meaningless, but that when man turns to the divine world he finds everywhere an "inner connection and meaning." That would seem also to be Reinhold Niebuhr's position which has been expressed as follows:

On a naturalistic basis, ancient or modern, society and history mean nothing. Such seems to be Niebuhr's conviction. On the meaning or no-meaning, the value or worthlessness of history, we face an either-or. Seen as any naturalism has to see it, life means nothing and can mean nothing and is valueless: man resolving to interpret history independently and by his own free will in fact rejects meaning; he cannot force meaning into it on either a Communist or a secular-liberal-humanitarian basis. So it is a question of either rejecting meaning altogether, or accepting meaning and value as disclosed to man from beyond himself and beyond the historical order. The "approach of Greek classicism" and "the modern approach," says Niebuhr, are alike in two ways; they are immersed in nature and they are unsuccessful. There is just one way out, "the Biblical-Christian approach . . ."<sup>2</sup>

Niebuhr has said that the passage "does justice to my viewpoint though I would not equate secular humanitarianism with

<sup>2</sup> Leo R. Ward, "Niebuhr's Theology," *Review of Politics*, XVIII (October, 1956), 508.

naturalism. I think that it elaborates all kinds of quasi-Christian meanings without being able to find an ultimate ground for them. In that sense it's parasitic on a Christian culture. Pure naturalism on the other hand, annuls all meanings."

Socio-temporal human life has and has to have meanings—things and actions are in fact directed by mind to ends and fulfillments, a fact evident to every one. But Niebuhr's position invites us to suggest that the two basic, central questions are in a way like three questions: Is nature tending to ends? Is any mind besides man's mind directing anything to ends? Niebuhr's reply is much too abrupt for us, as if autocratic and dogmatic. The question may certainly be asked—there is nothing illegitimate about it—whether, waiving as well as one can "the Biblical-Christian approach," man can know that nature is tending to ends, and again whether he can know that any mind is directing nature.

The temptation of many who are engaged in these problems is to telescope the two basic questions: that of tending and that of directing. They are not evidently one question. The temptation of the Christian such as Berdyaev or Niebuhr is to skip both questions and to give the Biblical-Christian reply. In this book we want, if possible, to keep to the two central basic questions, and keep to them within a philosophical context.

In any society and in anyone's life, there are endless test cases possible on the "meaning" of life. Human life itself is like a test case—or it is *the* test case. In particular circumstances such as war, poverty, sickness and death, the test is crucial. Take the instance of a family losing a joyous, brilliant and much-loved child. When William Allen White's Mary was killed in a fall from a horse, the event was naturally a tragedy for the Whites and the community. But anyone reading White's story of "Mary White" senses that the tragedy was somewhat blunted by the fact that the family and their community believed, perhaps somewhat vaguely and yet effectively, in transcendent meaning: little Mary, they felt, belonged to them still and to a divine-human world of persons. The same type of event was more tragic when the John Gunthers' son John, at just Mary White's age, suffered and died of brain cancer. Mrs. Gunther tried to get the child to pray, but, brought up secularist, he could only say: "Dear God,

if there be a god . . ." and the parents, not seeing any transcendent meaning, could only say that the child belonged to "the continuity of the universe."

Of course, there are many ways to take up a philosophical problem. Some might care to examine the present central questions by beginning with what the Bible says are the answers, or with what some people say the Bible says, or again with what Christian living may seem to say are the answers. Some might care to come to the questions from the fact that human mind is purposeful, that anthropologists find primitive men consciously directing things to ends; and then proceed on an either-or hypothesis: the human person thus exhibiting himself either is or is not the first person to have appeared in all nature. (If one supposed himself at an agnostic standstill, he could not proceed.) Again some might encounter order, or what seems to be order in nature, and attempt to account for it. Some might find things in nature tending to ends, and come to a standstill at that point, accepting such tending as brute fact, as a *ne plus ultra*. Some might employ Western wisdom or even all available wisdom on the problem and come to the conclusions which this wisdom seemed to indicate.

Our method is to try combining these last two approaches. So far as we can, we want to bring the wisdom of the Occident to bear on the central issues. But we seem to be, even from the first, confronted with an order in nature. This idea, "order in nature," is roughly and tentatively used at the moment, and we hope in good time to bring it to book. Certainly, neither at the start nor the finish do we go so far on "order" as Driesch did when he said:

"At the beginning of all philosophy stands the primary fact, the only completely indubitable one among all 'facts':

*"I have consciously something ordered"*

or,

*"I know something (ordered)." <sup>3</sup>*

The theoretic problem would be to account for order, if

<sup>3</sup> Hans Driesch, *Mind and Body*, translated by Theodore Bestman (New York: Dial Press, 1927), 144.

order is found to exist in nature. If order is given, we may accept it much as the bees or the oaks do or as uranium does, but we may also—and this seems to be required of man philosophizing—try to say what is finally to be made of it.

## Plato on Cosmic Purpose

HOLDING that the world encountered by man is a divine cosmos, Plato gives us the first Western classic and one of the most commanding philosophic statements on several major issues: on "purpose"; on man's place in the world; what man is; and how he meets nature, reality and God. In two of the dialogues, Plato says—in how much of a mythical way we must try to see—that God directs the world and makes a cosmos out of chaos: in that sense, there is cosmic purpose. The whole *Timaeus* is dedicated to this task, and the tenth book of the *Laws*, a much tamer, more prosaic and less germinal work, briefly comes to the same central conclusion: a mind is directing the world. The former dialogue is a wild kind of thing, hard to bring to book, and in reading it on "purpose" we are happy to have the help of two modern experts who spent years on it. First we shall summarize *Timaeus*, so far as it is relevant to the central problems of our own study; then after giving the two full-length and at times contrasting attempts to understand this difficult dialogue, we shall state the gist of the later and much more literal work.

In that way, the later and simpler Platonic account will possibly help to clarify and interpret the greater and richer dialogue, and will in turn be enriched and completed by it.

The man named Timaeus tells almost the whole of the story. He is a distinguished personage, a native of a well-governed state, himself learned in astronomy, and—like a Newton or an Einstein—“he has made it his special work to learn about the nature of the universe.” Well, then, let this man speak of the origin and direction of the cosmos.

At the outset, he invokes the gods according to custom and says that men of any wisdom always invoke God<sup>1</sup> when they undertake any task; surely he who is to talk about the universe should ask gods and goddesses that what he shall say be approvable. Now the most elementary division of “being” falls into these classes: that which eternally is and does not become, and that which eternally is becoming and never (we should say, fully) is. The former is comprehensible by genuine knowledge and reason, whereas the latter is an object of opinion by way of sense knowledge without reason. This second sort of being comes to be and passes away, and it never actually and wholly is. “Now whatever comes to be must come to be from some cause; for without a cause,” says Timaeus, “nothing can achieve becoming.”

That is his fundamental position: he affirms a world that always is and never becomes, and a world that always becomes and never fully is. Such, he thinks, is the case. His invoked and used principle is that becoming requires a cause.

But what about the whole heaven or cosmos? Has this always existed, or has it come into existence? The answer is that it has come into existence, and the reason for this answer is that it can be seen and touched and has a body; such an object is declared to be begotten, and to be knowable only by opinion and sense. If it has become, what is its cause? It is a big task to find the maker and father of the universe, and even when he is found he really is ineffable: he cannot possibly be expressed

<sup>1</sup>The word is used here with no article, but ordinarily in this dialogue with the article, and as a masculine; cognate words in this dialogue are those for “composer,” “artificer,” “constructor,” and especially the “dem-iurge.”

to every man. But everyone knows at least that the artificer had his eye on an eternal model; for the cosmos is the most beautiful of all things begotten, and the artificer is the best of causes. That bit of knowledge is a teaser, since we cannot get a precise transcript of the entire situation. We are dealing with a world of becoming, of never-the-same, and a sensible world; our mode of knowledge is accordingly opinion or belief: and "what being is to becoming, truth is to belief"; besides, we who speak and judge are human. In these circumstances, we are to ask only a probable account, a "likely myth": we catch the truth and reality of the situation, but not its historical occurrence.

Why did the artificer make becoming and the world? The reply is in several short parts, and we may presume these are meant to be closely related. The artificer was good. He was unenvious and wanted all things to be like himself. This is the main root and source of becoming and the cosmos: God desired all things to be good, so far as possible.

Two slightly peculiar but important points are added. The first is that he who is most good can only do what is most beautiful. But the rational creature is most beautiful. Therefore in making the universe, the artificer put reason within soul, and soul within body. The meaning is not that man's genesis is thereby declared, but that the cosmos itself is said to have been brought into being, and to be alive, ensouled and gifted with reason. In brief, the cosmos is said to have soul and reason, and to be due to the foresight of God. The other point is perhaps even stranger to modern minds. It is that God did not really create, but took a given stuff, a moving and disorderly stuff; and it was in this that he expressed his purposes: he brought this stuff from a state of disorder into one of order. So Timaeus says, and he repeats the point.<sup>2</sup> Already—and quite to our surprise—before the ordered heaven came to be, there was being and place and a caused becoming; and each of "the four kinds" or elements had its place even before the universe "was marshalled and generated out of them." Before this time, things were without reason or measure, and the work taken in hand was to make a cosmos out of the universe; the work of God actually was to make things, which had been far otherwise, as beautiful and good as could

<sup>2</sup> *Timaeus*, 30a; 53b-c; 69b-c.

be. Nothing was orderly, but God put measure into each thing and between thing and thing.

God had his purposes, his designs. Above all, they were that the heaven should be an orderly universe, a cosmos: that it should be living, perfect as a whole and perfect in every part; that it should be one and unique; and that it should perdure and not age. That was the way of God—he was good and wished all things to be like himself.

Now this cosmos or ordered world, which is brought into being out of a moving and eternal and shapeless magma, is itself a god. This cosmos-god is a whole and perfect body, and in the midst of it, throughout the whole of it and enveloping it, is a soul. Such is the plan of the everlasting God for it. And the engendering father rejoiced at seeing this cosmos, its model an eternal living being, itself an object of delight and glory to the eternal gods.

As we encounter it, the cosmos is the resultant of two causes: it has God as cause, the intelligent and free order-making God; and it has necessity as cause, or necessary causes. Timaeus says these latter are sub-causes, but they are genuine causes, relevant to the being of the cosmos, to its status and activity at any moment. God uses these sub-causes as assistants “to perfect the form of the good, so far as this can be done.” These sub-causes are such factors as cooling and heating, solidifying and dissolving; they are not free causes but are compelled to do what they do. Most men think of them not as secondary, as they really are, but as the original causes of everything; nevertheless they are disqualified for such position, since they lack reason and mind. For example, water—one of the four kinds—by condensation becomes stone and earth, and this is another of the kinds; earth by dissolving and dilating becomes breath and air; this through combustion becomes fire; and fire through contraction turns into cloud and mist, and when yet more contracted it reverts completely to flowing water. Thus there is an unbroken cycle, a movement from one primordial element through the other elements to that same element again. All this is sheer necessitation, as is the cooling and solidifying mentioned a moment ago; and we have to say that the cosmos came to be in the first place, and comes to be actually at any moment, as the result of the co-

working of two causes: *vōus* and *'aváγκη*. These causes are the mind of God, and the necessary and necessitated natures of the four elements and of their interactions. In that sense the mind of God, though itself free, works within the limits set by the natures of things. God or the demiurge is generating the cosmos, which itself is a perfect god; but in doing this he uses the necessary natures of the materials at hand.

These several statements by Timaeus bring us as far as he is asked to go; the details, and these are many and important, are to be supplied by other persons. Concerning these details it is enough to say that they are all based on teleological assumptions, especially on the major assumption that it is now known that whatever occurs in our cosmos in some elementary way is guided by God's mind and also in an elementary way is conditioned by necessity; neither the being nor the operation of anything can ever escape a primal tethering to each of these two causes. In fact, everything said later in the dialogue may be seen as a deduction from the main outline already given by Timaeus.

One may ask whether the doctrine of the teleological tract *Timaeus* is, first and last, a deduction. It may possibly be seen as such. Certainly it has an air of supposing that God shaped the cosmos as we find it; the procedure then is a sort of deduction of world-status from the supposed nature of God whose existence is known on other grounds, or at any rate is acquiesced in. Nevertheless, it may be that the procedure is otherwise, that at least in Plato's mind, the going is from things to God. The world in that case is given in great detail: the de facto cosmos, and man, and life, and colors and so on; and necessary causes are thought also to be given. For a proper account of this world-datum, a directing mind has to be allowed along with the necessary working of the natures of things. The doctrine is expressed in poetry and drama, a fact that has nothing to do with the question of its truth and of the logical method employed.

We have given a fairly literal statement of Timaeus' thought so far as relevant to cosmic purpose, and though the main doctrines may seem somewhat simple, the great students of Plato have always found this dialogue the most difficult Platonic work to understand. Accordingly, to get some notion of its possible

variant interpretations, we must review two distinguished studies of this work; one by the late A. E. Taylor and the other by the late F. M. Cornford. We shall state their positions on a series of central topics and shall let Taylor speak first in each instance, as his is the earlier and more elaborate commentary.<sup>3</sup>

1. *The Duration of the World.* The doctrine of Timaeus is this: a) the physical world almost surely had no beginning in time; b) becoming is derivative: what in any measure begins has a cause; c) God has not in any measure a cause and is not begotten; but d) the world need not begin in time, "in the sense that there was a time when the world was not there."

Cornford accepted the first two points and the last one almost verbatim, but to say the least he kept himself aloof from Taylor's view that the god of Timaeus is transcendent and absolutely other than the world.

2. *The Original Condition of the World.* Taylor's reading of two problems is especially to the point: a) matter is at no time an independent, intractable stuff with which God does the best he can; b) nor was there ever a time when there was "mere confusion and chaos, random movement without any 'laws of motion.'"

Here Cornford opposed Taylor on both headings. *Ab initio* and always, matter is in part not amenable to the persuasion of reason. And secondly, the Timaean doctrine is that the demiurge brings order into a "chaos of disorderly motion." Nevertheless, in a sense "cosmos has always existed. It has no beginning in time and therefore no maker." Of course, it is represented as made; but this is just a vivid way of saying that "the world was not a chance product of aimless natural powers but exhibits evidences of rational design." Chaos is "not to be taken literally. If the cosmos had no beginning in time, there never was a chaos before order was introduced." In that case, chaos can stand only as a symbol for some factor in the world at all times.

3. *Why a World at all?* Why anything except God, why a

<sup>3</sup> A. E. Taylor, *A Commentary on Plato's Timaeus* (Oxford: the Clarendon Press, 1928); also, "The 'Polytheism' of Plato: An Apology," *Mind*, XLVII (April, 1938), 180-89. F. M. Cornford, *Plato's Cosmology* (London: K. Paul, 1937); also "The 'Polytheism' of Plato: An Apology," *Mind*, XLVII (July, 1938), 321-30.

plurality of things? The reply of Plato or Timaeus to this question is given by Taylor in several statements, but they always come back to the same thing. God is good. In fact, God is the best. "The goodness of God explains both why there is a world at all and why it is a good world." God has not a grudging attitude; he is not mean and niggardly; he would not monopolize good; and in fact it is ever the way of good to overflow and to be generous in giving itself. Plato had said in the *Phaedo* that the good or best is the cause of all the order in the world; and in the *Sophistes* that mind or reasonableness can exist only in a soul; and in the *Laws* that whatever happens is due to the agency of souls and that God as the supreme soul is perfectly wise and perfectly good. Timaeus completes this doctrine by teaching that there is a world of coming to be "precisely because God is good . . . there is just one single organizing principle at work everywhere—the 'good.' "

Cornford both accepted and rejected this complex statement. He said that it was and was not Platonic-Timaean doctrine. True, he said, the cause of the world is the goodness of God, a cause that is not jealous. But the crucial problem always with Cornford, and as between him and Taylor, was this: How good is God, that is to say, how great is the affirmed God? Is God absolute, a self-existent being? Or is God no more than one of "the gods," and thus should the name itself ever be capitalized? Cornford hesitated, to say the least, before allowing that the God of the *Timaeus* is absolute, self-existent, not a mere god among the gods, but simply God. Nonetheless, he was at one with Taylor on the present central point: the world is because God, whatever his stature, is good. The world which we see exhibits "the working of a divine intelligence aiming at what is good."<sup>4</sup>

<sup>4</sup> J. S. Mackenzie tried to combine in one article ("The Conception of a cosmos from Plato to Einstein," *Hibbert Journal*, XXVIII, 1929-30, 481-92), the Platonic-Timaean and many other views: The universe can best be understood only in certain general conceptions, the most basic being the Idea of Good. "The Temporal Universe has to be thought of as an imperfect realization of what is good, in the fullest sense of that term. Plato's chief disciple, Aristotle, agreed with him in this. So did Leibniz in modern times," and so do many; the world "can only be fully understood if we think of it as aiming at good;" the cosmic process is a pursuit of the good,

4. *The Aim of Philosophy.* These English commentators were in the main in accord here. Taylor stated the aim of Plato's philosophy in general to be a moral one, a certain kind of life; philosophy is to complete education and help man become like God. The purpose of Timaeus or Plato in this dialogue, said Cornford, is to link morality to the organization of the world.

5. *Details of the Design.* God himself sets the course of the world in general, and no event is without divine purpose. The real is heterogeneous and only relatively stable, yet the circumstances of its being thus are not episodic, they are integral to an evolution under intelligent guidance. Decay falls within design; for example, the fact that some things serve as nutriment for others; and even death is part of the original good plan of God. Cornford presumably did not see reason to disagree in any serious way. But he added from the *Phaedo* the important item that we ought to explain how all arrangements are for the best, and he gave Timaeus' view of the end and precise purpose of the heavens: the heavens are there to be observed, and they also serve as a model of the unperturbed, for us, the so often perturbed.

6. *Is the Universe in Part Mechanistic?* The position of Timaeus is briefly this: a) it is doubtful whether we can speak intelligibly of mechanism and mechanistic cause; and b) even if we can, it is certain that we may not attribute any event to mere mechanism. So Taylor said. Cornford concurred and added: The word "mechanical" is a modern word and is common now because since Descartes and more notably since the industrial revolution scientific thought is haunted by the analogy of power-driven machines; but the ancients did not have these, they had only tools guided by skill and intelligence, and they associated the notion of order not directly with any tool or means, but with the designing intelligence.

7. *The Place of Necessity.* Taylor declared: The purpose ascribed to God is genuine purpose, not a quasi-teleology: there is no *als ob* about the theism of either Timaeus or Plato. This really says two things: that there truly is divine purpose expressed in nature, and that in Taylor's interpretation, the doctrine of and in that case there must be some "mind that apprehends and pursues it, and that is able to achieve it."

Timaeus is that the divine purpose is not in any degree thwarted by necessity, though this is conceded to be a factor in all natural events. In "purpose" or the *nous* which directs the realm of nature we have the true cause of events, but this *nous* always has the necessary working of things as a sub-cause, an accessory and accomplice. Necessity is the indispensable underworkman, not directly purposive but responsive to and persuaded by mind or *nous*. Necessity is simply the brute fact of nature, something of which we do not see the good. For instance, we do not see why it is "best" that some lower animals live longer than men do; we must accept the fact; this is "what was meant by calling the world the work of God and *'aváγκη*." However, there is no radical, ultimate dualism between God and the sub-causes, the latter being embodied in the one word "necessity." And though the heaven cannot be made perfect, the reason is that it is a something "come-to-be," and not that it is a sub-cause rebellious against the purpose of God. In fact, if we could have complete knowledge, this factor of necessity would vanish from our account of coming to be; but precisely because coming to be is perpetual and itself never complete, we cannot have complete knowledge of it.

Thus in Taylor's reading, "necessity" is a cause in the sense that in accounting for things we must appeal to two factors: God or reason, and an aimless, irresponsible, rambling cause. Yet even so, this second "cause" is not genuinely a cause. It is rather a something that gets in the way of our seeing the *causa vera* with sufficient clearness. This "cause," Taylor said, is specifically those concurrences for which we can see no value-justification, no good reason why they should be.

This radical exorcism of necessity as cause left Cornford very unhappy. The question is simply this: "What is going on in the world?" The philosopher Timaeus-Plato is looking for the world's "logos" and he takes comprehensive views. Two contrasted kinds of cause must be allowed, said Cornford: one is reason or intelligence working for what is good; the other is without reason and is operating at random. It is true that reason persuades and overrules necessity, but the victory is never complete. Some things come about from necessity after all, and not

under the complete control of reason. That (said Cornford) is the central utterance of the dialogue: The universe is effected by reason and necessity, the element of necessity and chaos confronting the divine intelligence not only at the outset but always; in part it is conquered at every moment, and in part it remains forever intractable. "It is here that I differ from Professor Taylor, who holds that the subordination is complete."<sup>5</sup>

In this way the two commentators came to contrasted views of how Timaeus understands evil. Cornford said that in the Timaeian doctrine reason aims at good and ordinarily achieves it, but at least sometimes and to some degree it does not and cannot achieve it. In that case the result is evil; at any rate it is part of the evil which we experience. But Taylor seriously disagreed. He said there is no hint of an irreducible evil-surd in matter and there is no absolutely intractable and ineluctable something in the necessitous and chaotic factor; the whole of reality is successfully directed by God to good ends. And yet there is evil. Since it cannot come from God, it can only come from bad souls. Such (said Taylor) would appear to be the standing Platonic doctrine about evil: souls do evil because they are ignorant, and if any soul is fallible we have an explanation for evil. To ask how there can be evil is to ask how there can be fallible souls, and these themselves are like brute fact! Nevertheless, the problem of evil is the most obscure human problem, and Plato does not pretend to solve it. Taylor's own tentative handling of it in this and other contexts was in terms of Kant's statement that a rational agent is both a free and a first cause of its acts; and if this be in some sense a limitation on the power of God, it is a limitation arising from the very character of "the divine purpose to create free moral agents." Taylor would not say that such a view is really Plato's, but only that we are told by Timaeus that souls are made by a supreme free agent on whom they depend for their existence.

8. *What is the Nature of Timaeus' God?* On this question the two commentaries most radically differed. Taylor said that

<sup>5</sup> In *Mind*, XLVII (April, 1938), 180. Taylor granted that this is a "perfectly possible" way to read Timaeus, but denied that it is the imperative way.

God is simply God, not one of many gods, and not merely a divinized world. God is self-existent; the gods are wholly subordinate to one God, and so too are necessity and chaos. The world is an eternal creation of God's; it is not created *ex nihilo*, but it depends totally and eternally on God; it depends both in its order and in its coming-to-be.<sup>6</sup> God himself is the eternal not-coming-to-be.

It was only this last statement that Cornford readily accepted. He urged that we should see the divine artificer, the demiurge of *Timaeus*, as a symbol, and the whole dialogue as merely an imaginative venture; Plato as moralistic poet not being concerned with the nature of reality but with our practical attitude to the world. For *Timaeus* does not say that the world's having a maker means that it depends in its existence on a really self-existent being. The aim of *Timaeus* is to show men the universe as the revelation of the work of reason, and not as the outcome of fortuitous motions. But is this reason a creator-god? Plato, Cornford said, refuses to answer this question. In fact, the dialogue is a mixture of monotheism and polytheism, and one of these is to be taken as literally as the other. There is "no justification for the suggestion, conveyed by 'God' with a capital letter, that Plato was a monotheist. He believed in the divinity of the world as a whole and of the heavenly bodies." And yet after this firm stand Cornford yielded and said: "I now admit that it is, on the whole, truer to say that Plato was at heart a monotheist than to say that he was not."<sup>7</sup>

Now a brief summary from the dialogue and these two commentators. Plato declares indubitably in *Timaeus* that the order of nature depends on mind: nature is directed by mind to good ends. Plato says this for practical reasons, of course; any other ground of his saying it is not explicitly stated. The mind asserted is eternal and does not come to be, nature is eternal and does come to be. Necessity remains and is a cause; but whether a genuine cause, or, as Taylor suggested, only a sort of Kantian

<sup>6</sup> On another occasion, Taylor said that he acceded to the Thomist view that creation means the total dependence of the world on God.

<sup>7</sup> In *Mind*, XLVII (July, 1938), 321.

"regulative principle" and not a "constitutive principle," is not decided. Evil remains a datum. It might be thought to arise in part from the necessitous and chaotic element in nature, or wholly from the free rational agent. The God who orders is almost certainly a monotheistic God with sovereignty over the totality of things.

Among the questions raised and presumably unanswered here by Plato are these. Can time eternally endure? Can time have, and must time have, a beginning? If an original, chaotic and recalcitrant factor is affirmed, what is its ontological status? In other words, how could it be? If the order of our world depends on mind, must its being in the long run also depend on mind? If nothing is independent and absolute, how can anything be? If the affirmed mind is absolute, could there ever really and truly be a chaotic factor? And yet, since evil exists, is not such a factor always present?

A more literal and somewhat less elaborate statement of cosmic purpose is given by Plato in the tenth book of the *Laws*. Here Plato makes a vigorous attack on the sort of people whom we should now call secularists and materialistic naturalists. They say that the greater and more beautiful things are by nature and chance, and only the lesser by any art. The elements, such as fire and earth, are by nature and chance: it is by chance that they move, and by chance or lucky combinations that the heavens are produced; animals and plants and the seasons come to be not by any god or art but by nature and chance. These men say that even the gods are by art and legal convention, and not by nature. They themselves live according to nature, which really means, Plato says, that they exhibit an anarchic tendency and a lust for power. The basic inter-relationships are inverted. For they say that fire and earth and the like are truly first and "by nature." Soul is said to be a derivative. The situation is that these men have erred "concerning the ontological nature of (the) gods."

One of the men in the dialogue says he does not quite get the point. In a passage that reads like Berkeley, the point is said to be this: Most men are ignorant regarding the nature of soul,

what it can do, and what is its origin. To tell the truth, it is among the first of beings, it is prior to bodies and it rules the changes of bodies. Mind and its works are accordingly prior to the qualities of bodies, such as hard and soft, heavy and light; and the latter are seen to be secondary and derivative. If that is so, it is soul that most of all has to be conceded the status of existing "by nature."

Now when we find X moving Y, and Y moving Z, shall we ever find a first cause of motion? Must we not allow a mover moving itself as the starting-point of all motions? But that is the very meaning of soul: it is the motion able to move itself. Thus soul is identical with the first origin and motion of all things, past, present and to come. This leaves soul the cause of good and bad, beautiful and ugly, just and unjust, and all the opposites. What kind of soul, then, shall we say has power over heaven and earth? Well, if the course and movement of heaven and all it contains are like the motion and revolution and reckonings of reason, then not only a wise and good soul, but the best soul, has the management of the cosmos. "This soul every man must believe to be God."<sup>8</sup> The stars also and the moon are caused by souls which are declared to be gods, and we are not to let anyone deny that all things are full of gods. It is reiterated that prudence and intelligence accompany the sort of goodness affirmed.

The universe is in fact greatly compacted together, and the author explicitly introduces us to the causes of its order. These are the points stated: a) all things are made to tend, b) by him who has charge, c) to the preservation and perfection of the whole; d) each part of which suffers and does its proper share so far as it can; e) to each littlest part a director is assigned so that the end be fully effected; and f) your share, O man, small though it be, is part and parcel with these and in all its striving its aim is with the totality of things.

So much for the two classic loci of Plato on cosmic purpose. It is unquestioned that he declares for such purpose, and that he does so for the sake of the good human life. But there is no

<sup>8</sup> The difficulty remains of knowing whether to capitalize. The word is used here in the singular and without the article.

suggestion that he thinks his doctrine merely a moral exhortation based on pious fraud; quite the contrary, his overt and evidently serious statement is that nature is directed by mind to good ends, and that nature herself primarily is soul in which mind is resident.

## Aristotle on Nature and End

WHATEVER we say as to the truth value of the great modern visions in philosophy, we have to say that some of the chief ones are negative. Such in particular are those of Hume and Kant, and Marx and Sartre; they are rather limiting. This is in strong contrast to Aristotle's visions. Aristotle of course has his negative side. Above all, he perpetually says he refuses to go along with Plato's theory of ideas and separate forms, and often he returns to this problem as if he was far from sure that he had ousted the Platonic view. But if he denies, it is certainly in order to affirm: he claims to have a more just epistemological theory than Plato's. All his main work is constructive and positive in every important sense. In part it is a reconstruction of what went before; and commonly in Aristotle's mind it marks an advance on the best that had been. In general, it is constructive in its own right and also in terms of the future, so that, as Professor John Marshall of the University of the South has said, more than any other man Aristotle is normative for the Occident. His is a new positive account of reality, and other men and other philosophies will build on it.

It seems to be true that any great philosopher such as Plato or Augustine or Spinoza has a central, major problem wished on him by his times. What then is Aristotle's problem? Some say that his answer to it, whatever the problem, must be found in the matter and form doctrine, or in the potency and act doctrine. We would say the answer cannot be found outside his doctrine on final cause, his whole teleological position. But what is the problem? We hold that he encountered the problem of what to do with the great mass of accumulated knowledge—accumulated in many fields: science, art, philosophy, statecraft, and so on,<sup>1</sup> by many men over some centuries, and added to by Aristotle's own inquiring and precise mind. And Aristotle feels he cannot handle this totality of given knowledge, itself like a datum, without the categories, and the causes, and matter and form, and potency and act, a developed logical theory and a realistic theory of knowledge.

Whatever the worth of the interpretation we have just suggested, in his own mind Aristotle is sure he can meet experience and reality and the data wished on him from all sides only by a worked out theory of causes. Without cause, and without final cause in particular, he has no chance of giving an account and logos of the world: of change, of coming to be, of growth or even of the heavens.

In his statement of the four causes, he gives and repeats the meaning of final cause. The four are these: (1) the immanent material from which a thing such as a tree or a house comes into being, (2) "the form or pattern, i.e., the definition of the essence," (3) that from which the change begins: "in general the maker is a cause of the thing made," and (4) "the end, i.e., that for the sake of which a thing is." The final cause is the telos or end; it is that for which; it is the good; it is the good of each thing and the over-all best in the whole of nature. Final cause is "one of the first principles"; we see that it is a cause in the case of the

<sup>1</sup> Cf. H. I. Marrou, *A History of Education in Antiquity*, translated by George Lamb (New York; Sheed & Ward, 1956), 52: "The *Topics* and the *Refutations of the Sophists* in the *Organum* are simply a classification, a restatement, of a great mass of material, much of which goes back to Protagoras and his followers."

arts, and in fact it is that "for whose sake both all mind and the whole of nature are operative."<sup>2</sup>

The end and final cause is better expressed in the word "telos," since the final cause is the completion or the thing itself as completed. To have reached that status it is to be "teleion" or perfect. Until a thing is complete and perfect, it does not wholly express its own form, essence or substance; an infant is truly, but not perfectly, a man, and it is ambiguous to say that the oak is "all there" in the acorn. Hence the difficulty experienced by Aristotle of keeping end as cause wholly distinct from essence or form as cause.

The difficulty is not a mere by-product of Aristotle's theory of causes, but seems to face anyone who would describe reality. All things tend by their natures to ends which are their full realization or perfection. Within each thing, as within all nature, an inner tendency goes to a consummatory terminus. Until that end is reached, the thing has not wholly its own form and being.

This perfectionist or value element is common to such widely different philosophies as Aristotle's and Dewey's, and is not only integral to Aristotle's teleology, but is essential to it and is literally the whole of it. Not as forced, but by their natures and entirely in line with their natures, things tend to ends; the end is the completed nature, and is called final cause. The same is granted by all to be true of art. Thus the end is that for which mind or art, and again the whole of nature, works. Things work together toward greater wholes, said General Smuts' "holism." Each thing works naturally toward its own wholeness, says Aristotle's teleologism; each thing and all nature works toward completion and perfection. As we remarked in more technically Aristotelian terms, it is not merely *from its nature* and from within itself that it so works, but it is also *toward its whole nature and essence*. Thus a value connotation is integral to being, as well as integral to Aristotle's teleology; and his teleology is strictly integral to his philosophy. Any attempt to excise teleology from Aristotle would be an attempt to delete Aristotle; it would mean throwing out his description of the functioning of the human mind and freedom and also of nature. Aristotle

<sup>2</sup> *Metaphysics*, 983<sup>a</sup> 24-32.

would say that to try to describe reality without final cause would be a refusal to transcribe data.

It is evident that in its elementary outlines Aristotle's teleology is free from the anthropomorphic.<sup>3</sup> For complete understanding of this freedom, as also for complete understanding of what he means by final cause, it is necessary to read his lively defence of final cause.

In part, Aristotle is concerned, as was Plato in the tenth book of the *Laws*, to discredit matter and chance as the sufficient causes of events, a position affirmed by the pre-Socratics and most notably by Empedocles. He first sets up their case with some care. He asks:<sup>4</sup> Why should not nature work from sheer mechanistic necessity—just as the sky rains, not in order to make the crops grow, but because, given the fact of thing hitting thing and being hit by the second thing, the sky has to rain? On the old and ever new mechanistic reading, the natures of things and their consequent inner drives and inclinations are not to be figured in what occurs; the mere outer fact of thing acting on thing should tell the whole story. Under set conditions, vapor has to ascend, under other conditions to condense and fall, and the growth of the crops is an inevitable resultant. Nature does not work at all from within toward vapor-rain-growth, and much less toward this as a beneficent effect. And could not the same be true of animals and their parts, so that whatever is fittingly organized does in fact survive, and what is not so organized has simply to perish? It is wholly a question of environment and not of natures and ends. Whatever occurs, in the physical or the vital realm, is thus an epiphenomenon and by-product of the working of necessary causes, and the working of natures toward ends has no place at all in nature. In that case, teleological or final causes are abandoned as superfluous.

That is how Aristotle states the mechanism of Empedocles, and we think his statement serves well for the mechanism of Lucretius or anyone else. Yet Aristotle claims that such a position cannot possibly hold, and he offers several arguments to

<sup>3</sup>A point emphasized by Augustin Mansion in his *Introduction à la Physique Aristotélicienne* (deuxième édition, revue et augmentée; Louvain et Paris, 1946), 251–56.

<sup>4</sup>*Physics*, ii, 8.

show its invalidity. First, nature works invariably or at least normally in one set way. Chance does not work this way; its effects are haphazard and rare. This argument evidently supposes that there are in nature some non-chance events which can be known by their invariability or frequency, and that because they are non-chance they have a final cause.

The second argument seems to us more effective. Sometimes several or many events work together in a series, all coming from one original action and all effecting one terminus. This last is a final cause. For if human art goes through a series of events to a terminus which is an end, a completion or final cause, the nature and inner working of things, taking that same route, also goes to completions and final causes. What nature is doing is tending through that series to that telos and completion, just as does human art. If so, the natural, inner working of things is toward an end.

These two arguments are from *Physics* (ii, 8), and the second is elaborated and illustrated in *De Partibus Animalium* (641). All the working of nature is in the line of means to end; the living thing having as source of its operation an internal principle analogous to the mind, which is the external principle and cause of art; and such inner working to an end is even more clearly the way of the heavens, where all is order and determinateness.

This inner working of nature toward ends is so like the working of mind toward ends in the mind's production of art that Aristotle seems to imply that nature achieves, without knowing, results for all the world like those which mind achieves, by knowing: the working is so determinate, so regular and so effective, and yet it is by nature and not by art. Art, he thinks, will do well to imitate nature; so that if nature (*Physics*, ii, 8) were in the business of building ships and houses, she would build them from inner working, as mind and art build them now; and if mind and art were to make the things made now by nature, they would proceed as nature does now. Aristotle has no fear of being lost here in anthropomorphic analogy. He wants to say merely that just as art goes by a series of steps to something complete which is an end and telos, so does nature. Such completion and end is a final cause, and is that toward which nature, left quite to itself, works. Hence, as Aristotle says (642<sup>a</sup>)

15 f.), those who omit final cause fail to give a realistic description and report of nature.

When the swallow builds its nest and the spider spins its web, their functioning is not from art, but it is certainly from their nature. It expresses an inner tendency and drive toward their fulfillment. In that sense, it is "for" and "on account of" an end, and in that sense the end or final cause cannot be omitted in any full account of what occurs in nature.

To persons with anything like the moral sensitivity of Plato, it might seem that Aristotle brushes off the problem of evil. If things go so determinately and as if sure-fire to completion and good, is not evil left as a surd? Aristotle's point is that they do indeed go in that direction, but they can get blocked on the way. What blocks thing X is thing Y or Z. Each is going about its business, but, to use Whitehead's designation of evil, things can be at cross-purposes and impede each other. Also some few things occur by chance; it is uncommon but it must be allowed; and there are freaks and monstrosities, which are deviations from nature's teleological working. But it would not do to lay down a general law to the effect that nature does not work toward ends, and thus declare that the notion of final cause is invalid. The route begins (as we said) with nature or being; then an action like nature or being; and lastly, an effect like nature, being and action. That is the regular route, although a particular being-agent can get derailed. In that case the end is not a full-fledged end, but an abortive end. Seen in the light of the particular agent's nature and action, it is more a resultant than an end.

Like Plato, Aristotle demands good in the effect. "Good" in Aristotle's view resides in a fulness of being, so that when worms work inside the bark of a tree and slowly eat the tree's life away, the total result is not the good of the tree; and not, in regard to the tree, the end and final cause. "End" means being, to say the least, and the wiping out and destruction of being is just what it is; namely, that wiping out and destruction. This effect is not what the tree works toward and is not its end. It is not the final cause, either. In this respect, the thought of the biologist-philosopher Aristotle is similar to an aspect of modern thought: the direction and struggle of nature are toward "survival"; but

Aristotle extends the idea to the whole of nature and in effect makes it read: "Being demands being." That his notion of "good" always supposes this idea of preservation and development is seen when he uses the notion; for example, when, in arguing in the *Politics* against the then recently proffered idea that the unity of the State should preclude all diversity, Aristotle says such a unity would destroy the State: but surely "that which destroys the State cannot be the good of the State."

The direction of unimpeded nature is always toward perpetuation and fulfillment, and hence toward being and good. It is even said to be toward the best; thus Aristotle holds that it is a sort of wry joke to say that death is the end for which man is born: not every last may claim to be the end, but only the best.<sup>5</sup>

Hence the repeated Aristotelian assertion that "nature does nothing in vain." Of course, nature does nothing in vain: nature goes toward development and fulfillments. To take one major instance: in Book I of the *Ethics* it is said that by nature man has a work to do; he is to develop precisely as and fully as man, and that is said to be his highest good. Nature is never simply repulsed by nature and sent away empty-handed. Another way of stating all this is to say that the working of nature is, at least as surely as the working of art, teleological; it is toward ends which normally are fulfillments, and these are not "in vain," "useless," or "pointless." In some passages, this is left unsaid; but then it is presupposed, and one would suspect as spurious any passage that was stripped of teleology.

At least once<sup>6</sup> it is said that "God and nature" do nothing in vain. But in an over-all view, what has Aristotle's God got to do with the teleological working of nature, and what has this got to do with his God? Part of the reply to this question can be given decisively, and part can be given with only a reasonable degree of probability. Aristotle has not made entirely evident what he considers the relations between his God and telic or autotelic nature. It may be that he intends to keep them in separate and self-sufficient compartments; in that case his God is not the intelligent director of nature. If Aristotle's God is merely

<sup>5</sup> *Physics*, 194<sup>a</sup> 30-34.

<sup>6</sup> *De Caelo*, 271<sup>a</sup> 34.

the thinker thinking himself, he is—as Piat said<sup>7</sup>—“quite on one side, and nature quite on the other.” Yet on the contrary, his God may be the director of nature.

Whether his God directs the world or whether the world runs itself, the world certainly tends to God as end. And within Aristotle's teleologism, this can only mean that God is the final cause, the telos or completion of the world. The terms here are convertible: to say that God is final cause of the world is to say that God is that toward which the world tends. God is the end and completion of all. The world tends to him as an end, and the world “is moved” by him; these statements, of course, are convertible. That toward which anything tends is the final cause and “mover” of its so tending. It follows that God is the mover and even the unmoved mover of the world.

Here Aristotle gets himself into a difficulty, or at any rate he appears to do so, though he gives no sign that he is aware of it. Nature tends to ends, and these ends, once achieved, are then within nature; they are not only in the line of the development of nature, but *are* that development. They are the completion of nature. The very end toward which nature tends is nature's own complete and “teleion” status.

But God is the final cause or telos of the world: God is desired and loved by the world, and God—as so desired and loved—is the unmoved “mover.”

But God is outside and remains outside the world. That is, unless in Aristotle's view God and the world are one.

Hence the dualism of ends affirmed in Aristotle's teleologism, a dualism of which he appears not to be conscious. The ends or completions of nature, as achieved, are always within nature: but God, the supreme end of nature, is always outside nature. God is never so attained by nature that he is assimilated by nature and becomes a part of nature; whereas all other ends are so attained: they are in and of and by nature.

In other words, Aristotle's report of “nature” is that its result as well as its action is autotelic. In the long run, “nature” is the effectuation of a tendency given in original “nature,” a tendency to the completion of each thing and each species and of the world; and such completion is inside the thing completed, of

<sup>7</sup> C. Piat, *Aristotle* (second edition; Paris: F. Alcan, 1912), 120.

one piece with it. But seemingly, Aristotle's God is outside completed nature.

We must next inquire whether the mind of Aristotle's intelligent God in any measure directs the world process, and whether in that sense nature is "meant" and "intended" and expresses "purpose." God is "wanted" by the world, is "loved" by the world, and is the final cause or supreme mover of the world; all of which says that the world tends to God; and yet the world does not attain or produce or appropriate God. But does the "thinker thinking himself" direct the world either toward its completion or toward himself? If he does not, what does he do *in* the world? Perhaps the correct reply is that he does nothing in the world or with the world; the world runs itself, and yet after all it goes toward God, and in that sense "is moved" by God.

In spite of Aristotle's doctrine on the point, expressed in patches and in mild language, and in spite of the opinion of many modern commentators, it is possible that he thinks of his intelligent God as directing the intimate telic and autotelic action of individual beings and groups of beings and as directing toward himself the movement of the whole world. That is, perhaps Aristotle claims to discover in nature what the British call "divine design."

In the following citations, one by one and additively, Aristotle seems to affirm divine direction in nature. In a series of remarkable analogies<sup>8</sup> he says the ordering of nature is like the intelligent ordering which we do. He says that the universe "probably" contains the good and the highest good as an army does, i.e., "both in its order and in its leader, but more in the latter, for the leader does not depend on the order but it depends on him." He says that all things are "ordered together somehow . . . ordered to one end," as in a household where men are not "at liberty to act at random," but most things are arranged in advance for them. He says there is one ruler and the world "refuses to be governed badly." Elsewhere<sup>9</sup> he says "there is one order controlling all things," God providing the better and "the perfection of the universe" by a perpetual coming to be. This statement is probably worth more than its face value, when we

<sup>8</sup> *Metaphysics*, 1075<sup>a</sup>, 1075<sup>b</sup>.

<sup>9</sup> *De Gen. et Cor.*, 336<sup>b</sup>.

recall that, in a precise literal and logical sense, it is one with the teleological doctrine of Aristotle: nature works from within toward ends, completions, "the better and the perfection of the universe"; and here it is said that God sees to such working. Hence it is conceivable that in Aristotle's mind this point is strong. And once,<sup>10</sup> in a vigorous if minor assault on anti-teleologists, he goes further into the problem raised by the fact that things exhibit goodness and beauty in their being and their coming to be. Just at this point the question is, what is the ground (*aition*) of their doing so? It cannot be either automatism or tychism—to use his own words. It must be at least teleological, and the case for the latter is so strong that when one man went further and said that mind was present in animals and in nature, "as ground of order and of all arrangement, he seemed a sober man alongside the temerarious chattering of his predecessors."

A little noticed passage fits remarkably well with Aristotle's statement above that the universe probably contains the good and the best, both in its order and in its leader, and with the statement that one order controls all, and God provides the better and the best. In this passage (*Physics*, 192<sup>a</sup>) Aristotle continues or reverts to Platonizing. He says that we have to affirm matter, form and privation, in order to explain events in nature—although, agreeing with those who harp on the subject, he readily grants that there is in nature "something divine, good, and desirable." His word "theion" or divine may be translated as "excellent," in which case it is a superlative for "good and desirable"; and these words are as if exegetical of it. Yet perhaps it should be translated as "godlike" or "of God"; and in this case, when added to the two similar passages cited, it has some logical and especially psychological force. The psychological force of the passage is all the more when we note the readiness with which Aristotle grants the godlike, the good and desirable in nature. For he says, in effect: Heavens, we all grant that! But, given that, the fact is that nature is not yet explained, and we have (Aristotle says) to invoke the three principles of matter, form and privation.

Why, then, do most commentators today say that Aristotle does not affirm an intelligent director of nature?

<sup>10</sup> *Metaphysics*, 984<sup>b</sup>.

The main reason has usually been the character, or what appears to be the character, of the teleology which he so vigorously defends. This teleology seems to be an immanent and self-sufficient tending of nature toward immanent ends and toward one transcendent end, the mover unmoved. The insistence on the naturalness and internal quality of the tending is so marked that any intelligent direction, internal or external, seems ipso facto to be excluded. For it is reasonable to ask: If nature is so determinately autotelic, can it be at all antecedently and transcendently telic—directed by some mind, and by some mind which is not a part of nature?

Then, closely joined to this reason is the advantage of logical economy. The passages in which Aristotle seems to say that the direction of nature demands an intelligent director can be interpreted as not saying this. For instance, Aristotle says in the *Ethics* that man is made for virtues; but his position is—or can intelligibly be thought to be—that man is so made whether he is made by some intelligence or by no intelligence. The end, Aristotle says, is the supreme incommensurable good, the best thing of all; and this evidently is the ultimate end and not in any sense a means. Such an end is the end natural to man: it is the completion and telos of human nature. Man has a natural tendency to this end, and all the thousand arts employed in human living could never do more than effect this end; whereas any art or act that would in any way contribute to any other final resultant would, in this connection, be not only not good, but in fact evil. In that sense, Aristotle is an objectivist and dualist in ethical theory, and his ethical system is based on an elementary teleological conception. But does an intelligent God make man to be like that—with a tendency toward such a realization? Aristotle does not say yes or no. Man *is* like that. He is such and such, and bears within him, as integral to him as is his own being, a tendency to a proper natural functioning and thereby to wholeness and perfection of manhood; to go with that tendency, deliberately to direct oneself along that line, is to be achieving the end and highest human good. All this would seem, in Aristotle's view, to be so if there is or is not a God who is the author-director of the given human teleological process and direction.

The foregoing, it seems to us, is a tenable statement of Aristotle's teleological position. Conceivably, it is the correct interpretation; and it has a real advantage in the matter of logical economy.

As a further argument from omission, it is true that Aristotle's mover unmoved is not explicitly identified with any intelligent director of nature that he may possibly affirm. But it is a sort of jocose logic which would say that therefore Aristotle does not affirm an intelligent director of nature. This conclusion comes from modern man's bringing to his reading of Aristotle certain historical identifications, ever so much later ones, with which we are now familiar.

Furthermore, the famous saying that the one man who saw mind at work in all nature was comparatively a sober man, may be discounted once we see the possible psychological direction of the statement. Well, well, Aristotle says, comparatively it would be a sober, balanced man who would say that mind is the cause of events in nature—rather than the man who would say that all is mechanistic automatism and tychism. Thus the affirmation here of the credibility of mind as directive of nature may be understood as merely a hyperbolic affirmation of what, after all, may be only an autoteleologism.

How then do those who interpret Aristotle as not saying that nature is directed by an intelligence, how do they understand his frequent saying that nature is so directed? In the first edition of his work (1913), M. Mansion said that Aristotle's words in this connection may be taken as a "literary device." Possibly so; but the interpretation is much too facile. W. D. Ross said that, in the words referred to, Aristotle is "probably accommodating himself to common opinions." This may conceivably be; but in the series of analogies mentioned above—between the ruler of nature and the ruler of a household or an army, and so on—Aristotle certainly went far out of his way in so accommodating himself. To use popular language and popular sayings is one thing, but to misrepresent one's own thought would be quite another; and if one's doing so is merely an expedient move in order to get people "to be good," we must remember that Aristotle explicitly condemned anyone's ever doing this.

It seems to us, then, that, granting that these interpretations

by Mansion and Ross may conceivably be correct, they are nevertheless difficult enough, and they by no means silence the other side. It is likely that Aristotle does not affirm an intelligent director of nature; but these commentators do not conclusively show this to be the case. Ross's strongest declaration to this effect—aside from his explaining away the overt statement of Aristotle—is that for Aristotle "the teleology in nature is definitely opposed to the working of thought."<sup>11</sup> Ross refers to the passage where Aristotle says that merely because we do not see the agent deliberating does not warrant the conclusion that nature is mechanistic. But we must say that this text itself does not definitely bring into opposition the telic working of nature and the working of mind in nature. What Aristotle says is that nature exhibits a determinate working to ends, and that it is absurd, merely because we do not see the nature-agent deliberate, to say that there is no such working in nature. Of course, if the words of Aristotle, ἐνεκὰ τοῦ γένεσθαι, are translated (as in Hardie's and Gay's translation of the *Physics*) as "purpose," the question itself is a priori badly stated, because of the ambiguities of our word "purpose"; but they may be much better translated (as in Carteron) as a "determinate teleological coming to be." Here and everywhere, Aristotle says that there is in nature such a coming to be. He does not say that it is opposed to thought, but only that we are not justified, merely on the ground that we do not see nature deliberate, in saying that such a coming to be is absent from nature.

Because of his depth, originality and learning, Werner Jaeger has more right than any other to speak on the development of Aristotle's thought. His interpretation is that, in his theory of God, Aristotle was at first by no means free from Platonizing, but that his native empiric bent eventually caused him to begin a new statement, one which does not fit perfectly with the old and which was never completed. Inconsistencies, then, are to be expected. On this reading, which is the most reasonable, we have only to say that Aristotle's autotelism increased and his Platonic transcendent telism decreased as he matured and aged.

<sup>11</sup> W. D. Ross, *Aristotle* (second edition; London: Methuen, 1930), 186; referring to the *Physics*, 199<sup>b</sup> 25 f.

There certainly is this increase and decrease, no matter what Aristotle finally meant by them.

What, then, is the sum and gist of Aristotle's teleology? The reply has to be complex.

1. He affirms an immanent working of nature to immanent ends, and also to one transcendent end.

2. The affirmation of a transcendent end is inconsistent with his usual and quite consistent teleology, but—as everyone knows—is forced on him by the need to account fully for the fact of motion.

3. This transcendent final cause is not explicitly identified by Aristotle with any director of nature affirmed by him.

4. A director of nature is in fact affirmed.

5. This affirmation may reasonably be discounted—not because it is a catering to the popular mind nor because it is a kind of literary device; but for three good reasons: first, because it is a far weaker affirmation than that of his simple teleology which we may presume to be an autotelism; secondly because it is stated in flowery language, which may represent an atavistic reversion toward Aristotle's Platonizing period; lastly, because Aristotle's ethical theory, which is obviously teleological, is from start to finish without any reference to dependence on God: it is not suggested that the moral agent comes from God or that God is the end toward which teleologically orientated man tends.

6. Aristotle nowhere in his theory of reality gives us any warning that his affirmation of a director of nature is not to be taken seriously. Hence the presumption, which cannot be discredited, is that the affirmation means what it says.



## What Is Final Cause?

THE whole positive side of Aristotle's teleology is taken by St. Thomas Aquinas as an integral and coherent part of his own philosophy. Yet Aristotle's thought on this matter, as on many others, is not simply adopted, but is adapted. Far from transliterating the Philosopher, St. Thomas' procedure is to use him.

For both Aquinas and Aristotle, nature is the scene of autotelism. Nature works toward an end, and at least a major end of its working is the preservation and development of nature. Mansion says: "Aristotle insists more on the tending of nature to an end than on the role which nature enjoys in being an end itself"<sup>1</sup> That statement would not hold for Aquinas, for whom, nevertheless, the tending is impressive. With Aristotle, Aquinas considers the working of nature an inside job, a working much more decisively specified by the form and nature of agents than by shocks from the environment. The result, too, is inside nature; and if we were to single out in each author the commonest and standard meaning of "nature," we would say that nature is this tending to an end.

<sup>1</sup> Augustin Mansion, *Introduction à la physique Aristotélicienne* (Louvain, 1946), 258.

In the eyes of Aquinas, the best thing in the world is the order of the world, which of course is an immanent end. But along with Aristotle, Aquinas affirms an end transcendent to nature. We can more easily see the position of these two men by considering the points at which St. Thomas' teleology goes beyond Aristotle. Aquinas first of all goes beyond Aristotle with the doctrine that the working of nature cannot be fundamentally impeded; secondly by the fact that, fundamentally, no event ever exhibits Aristotle's spontaneity and chance; thirdly in the sureness with which Aquinas has affirmed a divine director of the working of nature; and fourthly in Aquinas' identification of this director with the transcendent end of nature: the God who is first is also last; the ends of the world are tied together. Aquinas has clarified and made more explicit the meaning of cause and added a touch to the meaning of final cause. As in Aristotle, the ethical theory of Aquinas is objectivist and dualist and rests on a teleological ground: nature tends toward an end and good. Of course, there is in these authors a teleological ground for arts, mechanics and government, economics and domestic life. They see every step of human making, for example, cooking and building, as also every step of human "doing" which covers the exercise of freedom, as guided by and in tow to a preconceived architectonic end.

In this and the next four chapters we shall review these and other points developed by Aquinas, beginning with the meaning of cause and final cause.

Aquinas states just once (we believe) what he understands the influence of final cause to be, and seems to mention only once his own understanding of the nature of cause itself. Along with Aristotle, and certainly prompted by Aristotle, he defends final cause; but he does not defend "cause," as serious challenge to the validity of the notion of cause would occur only after some centuries.

A cause as such is that from which anything in any way or degree comes to be, and it supposes a positive *influence* on the being of the thing caused: *hoc vero nomen causa importat influxum quemdam ad esse causati.*<sup>2</sup> This formula may be translated as follows: A cause is that which has a genuine influence

<sup>2</sup> St. Thomas Aquinas, *In Metaphysica*, V, 1.

on the being or the mode of being of anything. Insofar as I move this chair I am the cause, not of its being, but of its being in a different place. What particular influence is assigned to efficient cause, and again to final cause? Aquinas answers by comparing and contrasting the two. Just as the influence of the efficient cause lies in its *acting*, so the influence of the final cause lies in its *being wanted* or desired.<sup>3</sup>

The word used for the influence of final cause is "appeti"; its influence "est appeti et desiderari." The second verb appears to be exegetical of the first and adds nothing except emphasis or an attempted explanation. In any case it will be sufficient, in getting to the influence of final cause, if we give the meaning of "appetitus," that is, of "desire." The understanding of this technical word is the key to the understanding of at least the autotelism of Aquinas, though not his antecedent-transcendent telism.

Desire or appetitus is an active tendency in the agent, an inclination toward something; and this something is the end and final cause of that desire and appetitus. In this sense, desire has more than a psychological and biological reference, since it is thought to apply to the inner activity of even such agents as stones and fire. Rational and human appetitus is merely one kind encountered by human knowledge; animal appetitus is another; and natural appetitus, such as that in stones and in fire, is the third kind. In some instances appetitus is a conscious, and even a willed, desire, and is simply called "will." In other instances it is on the conscious level but is not freely willed; in others it is either vegetal or is simply inorganic. In general, appetitus is an inclination and tendency of anything of its nature toward anything. In man, the will is an appetitus: it is a rational inclination and tendency toward an end. Appetitus is also present in the stone, and is an inclination toward the status quo. In a plant, an animal and a man there are desires and inner inclinations not only like, but perhaps identical with inorganic appetitus. Action and nature itself can be accounted for, as Aristotle held against Empedocles, only if we admit the inner tendency and working of the agent toward ends consonant with its own being; and these ends are called final causes. We do not inquire at present whether

<sup>3</sup> St. Thomas Aquinas, *De Veritate*, q. 22, a. 2.

there are such tendencies or “appetitus” in either the organic or inorganic; we are simply stating and illustrating what is implied in one of the terms—the phrase “appeti et desiderari”—used to express the meaning of final cause.

Among root notions of St. Thomas’ teleology are these two: kinds or types of being exist in nature; and each real thing in the world exhibits the nature of its kind. The *will* of man is taken to be distinct from *nature*, as one kind of cause is distinct from another, each having its own proper mode of acting: the will is master of its act, whereas nature is fixed and set in one groove of acting. Yet even so, will itself is at least based on some sort of nature, indeed simply on nature, and the way of acting proper to nature must be shared by will. Thus will, though always other than nature, rests fundamentally on nature; for will, no matter how decisively free, is radically “fixed to something.” That is to say, the will is *a nature*; it is set and *determined* by its own determinate nature.<sup>4</sup> Will has to be will, just as nature has to be nature; and as the end is given for nature by nature in general, so the end is given for will by its nature. Each kind, and again each individual of each kind, is caught in a trap: in order to be, it has to be what it is. If nature is such and such, and of course it is, its action has thereby to be such and such, and so too for its results. The same is true for will—blessed with the being and nature it has, or suffering that nature.

The foregoing statement of the necessitation of will is a test and proof of the elementary and serious character found in St. Thomas’ teleology. The metaphysical basis of his doctrine is the given definitive character of being, in both nature and will, and the consequent determinateness of action and of effect.

Final cause is that toward which there is such determinate and definitive action. It is that which is demanded by the nature of *nature* and the nature of *will*. It is also that which is normally accomplished by each of these. Such is the theoretic meaning of final cause. This is the cause whose influence consists in its being

<sup>4</sup> *Ia IIae*, q. 10, a. 1 ad 1. Cf. Paul Weiss, *Nature and Man* (Yale University Press, 1947), 19: Freedom is a power “turning the indeterminate into the determinate”; 199: “Freedom is a power by which the indeterminate is made determinate.”

sought or desired. It is that toward which nature goes; it is that toward which there is natural tendency, that is, that toward which there is tendency in the nature of *nature* and of *will*.

To understand the force of St. Thomas' statement on the meaning of final cause, a review of his theory of "the violent" may be helpful. With regard to the will's own act, no violence can be done to it. Why not? Because the act of the will (*velle*) is simply an inclination or tendency proceeding from an interior principle, with knowledge: which is merely to say that it is will-tendency, or tendency guided by intellectual knowledge. The will can be broken down by dictatorial pressures and even destroyed, as also its possessor can be; but so long as the will exists, it has its own being and nature, which is a tendency to act freely. Violence cannot be done to *natural appetitus* which is tendency without any knowledge. Violence cannot be done either to will or *nature*. If the nature of water is to run downhill, that nature cannot be changed, though water can be taken uphill; its tendency which is the concrete expression of its nature, remains what it always was. Hence the imposed or violent, which is from an extrinsic and non-natural principle, is against the interiority of nature and of will. In the strictest sense, *the violent* is only theoretic, because the primary *motus* or drive of will is from within, just as is the motus of nature. And though something can *move* a thing without being the cause of the thing moved, yet only that which is the cause of the nature can cause the natural motus of the thing. For example, the natural motus of a stone is caused only by whatever it is that causes the nature of stone; it is easy to move a stone, but impossible to change the natural motus of stone. Accordingly, man, who has will, can be moved by something that is not his cause; but that the original will-motus within him should originate from some exterior principle which is not the cause of his will is impossible.<sup>5</sup>

The will is moved *naturaliter*, i.e., by a necessity of its own nature. It tends naturally to good, as each power in man, e.g., intellect, tends to its object.<sup>6</sup>

Thus necessity itself, as well as cause, is of two kinds: an external, mechanical necessity and cause, and an internal teleo-

<sup>5</sup> Ia IIae, q. 6, aa. 4-5; q. 9, a. 1.

<sup>6</sup> Ibid., q. 10, a. 1.

logical necessitation based on the nature in question. It seems to us that Aristotle, although he saw these two kinds of causes, did not see that each is a case of necessitation. Aquinas represents the working of final cause, even in the instance of will, as a necessary and inevitable working; in Aristotle's words, this necessity is a necessity of nature. For if a thing is, it has a nature and a consequent working which is toward ends. This inner teleological natural necessity appears not to have been explicitly recorded by Aristotle though it is implicit in any autotelic theory.

Another problem is set by this inner telic necessitation of nature and of will as nature. Obviously these two are the whole given teleological reality, outside of man's or intellect's evident teleological functioning; and this latter is by definition *art* and not *nature*. The problem is: What is the origin of the given teleological character of reality? For we seem to know that it does originate and is caused, since things come into being before our eyes. Is nature, teleologically coming to be, self-enclosed and self-existent, a perpetually self-causing *natura naturans*? Does nature, as given in *nature* and in *will*, arise from mere nature? And if not, does it arise from force, and not from any intelligent cause?

Even now this problem is troublesome; but it must wait. At present we are merely trying to state the meaning of final cause. This cause is that toward which there is any natural tendency. If such cause is found to be at work in nature, questions about the status of nature as so endowed will be justified.

Obviously, mind acts for ends, and these ends are final causes. Nature is said to act for ends, and these too are called final causes. Final cause is that toward which mind directs action—for example, contractors and carpenters act to build a house, and doctors try to maintain or restore health. Final cause is also that toward which nature, left to itself, works; that toward which there is any natural tendency, such as growth. With this introductory statement, we can readily understand the sense of St. Thomas' cryptic axiom: *Omne agens agit propter finem*. Any agent—the agent with any kind of knowledge, and the agent without any kind of knowledge—acts for an end. *Any agent tends to an end, and to be an agent it must tend to an end.* And the end is a final cause.

That is the idea and meaning of end or final cause. Identified in a general way, end is preservation and development. It can only be one or both of these. At this point, Aquinas resembles Plato and at the same time has adopted the theory of Aristotle that nature as well as mind tends to ends which are good. "The good" keeps reappearing in these philosophies, as if *good* must be included in a report of nature and reality; and we shall see that *good* reappears also in St. Thomas' affirmation of mind as directive of nature.

To "act for an end" means to tend to perfection. This embodies what is known as "first perfection" which is mere being, and also "second perfection" which includes growth and fulness of being. Hence the first law of nature, the law of preservation, and the second law, that of growth and development, are teleological laws. Any law of nature is simply a statement of the way nature works, and the two laws just mentioned assert that all reality has a tendency toward preservation and development.

Notice the technical terms regularly used by Aquinas. The agent *acts*. The final cause, however, does not act: it *moves* the agent, and the agent is *moved* by it—surely an instance of middle voice in Latin. To say that the agent is moved means that the agent tends, for its own advantage, to that end. This usage often recurs and is summarized with compactness by Aquinas when he says: "The appetitus of anything naturally is moved to and tends to an end connatural with itself."<sup>7</sup> The verbs, "is moved and tends," need not both be employed; each says exactly the same thing as the other.

A remarkable context in which Aquinas might be expected to be off his metaphysical guard shows clearly what he means by his words, "is moved." St. Thomas is explaining the scriptural text, *In quo et positi sunt*, in which St. Peter is scolding some people for stumbling over God's word, telling them that it is their destiny to refuse it; they are called to the refusal. To exegete the text, Aquinas quotes the more famous text, *In ipso vivimus, movemur et sumus*, and understands these words—quite generously, when we revert to the first quote—in terms of God as man's final cause: "That is to say, to which they are destined, in other words toward which they have a natural

<sup>7</sup> Ia IIae, q. 62, a. 3.

tendency.”<sup>8</sup> We are interested here, of course, in his translation of “movemur” into what is in effect a middle voice, though the original Greek is passive; and we are even more interested in his getting out of this word the idea of natural finality. Aquinas is combining and identifying the biblical-providential idea and the Aristotelian-Thomistic teleological idea.

That then is the sense in which final cause *moves*. It is that toward which nature tends. The agent is *moved* by the final cause. This only means that the agent has a natural tendency to it, a natural tendency toward an end. It is obvious to Aquinas that both nature and will-nature have an original inner motus, and that in the strictest sense this motus cannot be forced, constrained or impeded; and the objective of the motus (let us say full growth as objective and final cause of vegetable motus) for the sake of convenience is called *finis* or end.

Two nuisance difficulties in terminology have to be disposed of. In Thomistic as well as in Aristotelian language, the end and final cause is *that for which*, the *δι εύεκα* or *propter quod*. The words are intelligible now, since to say that the final cause is *that for which* is only to say that it is that toward which there is natural tendency. But when philosophers of various schools say that the final cause “arouses” action, “entices,” “allures,” “attracts” and even “provokes” and “solicits” action, they seem to be bogged down in physics and psychology. The agent whose action is said to be “drawn” and “solicited” may be as lifeless as the wind. If “arouses” and other metaphorical terms are to serve in teleological contexts, they must be used with circumspection, and at least at the outset it is better to say with Aristotle and Aquinas that the agent tends by its nature and inner motus to its own being and the completion of its own being. The saying of Aristotle that matter “yearns for” form is justifiable, since in Aristotelian language it simply means that the natural tendency of matter is to be completed by form. The saying of Aquinas that goodness calls forth (literally, *provocat*) love, is reduced by him to non-figurative language. In his usage the word “love,” which has only a psychological meaning for us, can be a much wider term inclusive of physical, vital and psychological meanings. There is an “amor” guided by knowledge,

<sup>8</sup> *Comm. in I Peter 2:8*; and quoting *Acts 17:28*.

whether animal knowledge or intellectual knowledge; and there is an "amor" in nature itself; and this "amor," though derived from some knowledge, is accompanied by no knowledge. What is the "amor" in nature? It is something integral to the appetitus of nature. "In the appetitus of nature, this is quite apparent: that just as everything has a natural consonance with or aptitude for that which agrees with it—and this aptitude or consonance is the amor of nature; so toward what opposes it and is destructive of it, everything has a natural dissonance, and this is the hatred of nature."<sup>9</sup> In meta-psychological terms the implication is that everything "loves" its own being and fulness of being, and "hates" whatever is destructive of it. The same is often said in teleological terms: "Every agent tends to accomplish good and avoid evil."<sup>10</sup>

In the hands of great metaphysicians, axioms such as the final end "attracts" and "provokes" are just. The less critical fall into psychologism, trying to use or even to disown these axioms. Garrigou-Lagrange, a profound thinker, perpetually offends with his undefined use of "attraction," "solicitation," and so on;<sup>11</sup> and a dozen current authors psychologize metaphysics in this way. The most interesting was Ralph Barton Perry who, in an attempted refutation of the Aristotelian usage, fell completely over himself and let his own theory affirm that the end "arouses" action.<sup>12</sup>

Akin to this psychologism is a sheer physics applied to teleology. The form of the question, by those who affirm and those who deny final cause, is: Does not the influence of final

<sup>9</sup> *Ia IIae*, q. 29, a. 1.

<sup>10</sup> E.g., *Ia IIae*, q. 20, a. 4, sed contra.

<sup>11</sup> See almost any page of his *Le réalisme du principe de la finalité*; and his *God: His Existence and His Nature*, I (St. Louis: Herder, 1934).

<sup>12</sup> R. B. Perry, *General Theory of Value* (second edition; Harvard University Press, 1950), 69–70: The Aristotelian God produces motion without being moved, and the object of thought and that of desire are said to move without being moved. "It is customary to speak of objects or persons as charming, fascinating and attractive, where activity is imputed to the object and passivity to the subject . . . that same 'pathetic fallacy'. . . . The object of my endeavor is credited with an endeavor which it arouses in me." Besides his falling into his own trap, his use of Aristotle showed that he did not know the cited words of Aristotle in the original.

causality consist in a "pull"? For example, Bergson said he would not explain nature by either a pull or a push. Briefly, the answer is that the final cause is that *toward which* nature tends. Final cause is not a tractor.

Many writers have put the following difficulty. To be effective, a cause must actually exist. But the end is yet to be actual. But the non-actual never does anything. Final cause then is not a genuine cause. In his work on development and purpose, Hobhouse put the problem concretely. Suppose a person is invited to a dinner; he and his host do many things for the sake of the dinner; yet the dinner is not only now non-actual but, for some reason or other, will never be actual. We need only say that the final cause is an end, and this means that things are tending toward it, and it is or would be a telos, a completion—though some things never are in fact completed. It is called a "cause," in the sense that it is one of the elementary factors or principles without which no one can explain the coming to be of anything that comes to be.

Hence the simplicity of the answer to the question: What then does the final cause do? It does not do anything. The agent acts. The final cause is that for which the agent acts. *Agens agit. Finis movet.* These words *agere* and *moveare*, and again the word *agere* as versus *appeti et desiderari*, are a fair warning: on the one hand they mean "to act," and on the other "to be acted for." If there is tendency, that toward which there is tendency is that toward which there is tendency, and it is called final cause; and if that cause exists and is a completion, it may be called telos or completion. As for the difficulty noted by Hobhouse, the human mind can suppose a completion which never really will be.

For the sake of a theoretic statement of the definition, we have assumed appetitus or tendency in nature. Aquinas thinks that this appetitus does exist and is "a quasi motus" of nature, and this motus, he also assumes, is a motus *ad rem*. Why he thinks there is tendency in nature is the subject of the next two chapters, the first of them citing some of the illustrations used by Aquinas, the other using deduction. After those chapters we shall try to state what he thinks are the realities toward which

nature tends as to a final immanent and a final transcendent cause, and why he thinks nature is intelligently guided toward these affirmed ends.

For the present we only remark that for Aquinas final cause in its theoretic statement is that toward which action, and especially the action of nature, tends. It is that toward which there is appetitus, a motus of nature. It is the object of any desire: of will-desire, of animal desire, or of "love" in nature. Final cause does not do anything; on the contrary, all things are done for it. In its being desired, it does not desire; hence the Aristotelian-Thomistic formula: the final cause "moves and [precisely as final cause] is not moved." The attribution, either with praise or blame, of agency to final cause is an error, and the criticism of final cause either as not being agency or as being a psychological agent misses the point.

## *Instances of Final Cause*

THE foregoing is the hypothetic nature of final cause: that toward which anything by its nature tends—this would be final cause. The question now is whether any such cause is known to exist.

We saw that Aristotle held strenuously to final causes in nature, one of his arguments being grounded on the uniformity of certain events and things and thus on types of events and things. But when occurrences were not regular, Aristotle had to leave them to what must at best be called non-final causes. His chance and spontaneous events are of this kind: they have not a telos as cause; they are necessary, but not teleological, and are not to be accounted for in terms of “nature-form” working toward ends. However, he stated as another principle the determinateness of being, and this logically leaves no room at all for a non-teleological event. We shall see that Aquinas and Spinoza go through with the logic of the “determinate” principle.

Aquinas holds that, regardless of regularity, there are final causes. There must be—if there is any action. His thesis is that

if anything acts, it acts *for an end*. Fundamentally, chance is a mental construct and finally is non-existent.

In the next chapter we shall examine the thesis that every action can be known to be acting for an end. Here we merely cite instances which seem to show the existence of final causes in nature. These instances are from vital activities such as knowing, moral and biological growing, and seeing. The present chapter does not depend on any theory of life or mind and can be read by anyone.

It may appear as if, in this and the preceding chapter, we put the least philosophical foot forward; as if we began with the words "final cause," then had to make up a description to fit the words and at last started a search for things to fit the made-up description. In various parts of sciences, such a procedure may be all that is available. But that is not our approach. We have had two leads, each set by a problem. One has been through the question asked by the "order of nature": What is the possible *logos* of order—how is order reasonably to be accounted for? The second has been by way of the practical problem given in the needs of human living: How would one manage to live a human life if he thought, as Hume said, the world runs on "at adventures"?

We come then to some instances of final causes. Let us begin with intellect and knowing.

Every man has to hold that he can know something. Of course, he can assert that he cannot know anything, but it is obvious that such an assertion is self-defeating and cuts the ground from beneath his feet, since the man has thereby affirmed that he can and does know something. Even more to the point, by his nature man tries to know things as they are; any particular thing and many things. He has to try to do this, and persistently, and in various ways and relative to various things, he does try to do it.

But are we not raising the whole problem of knowledge, and did not Kant show that the problem of the real is insoluble? Just now the question is irrelevant. We need not inquire how man can know, what the intellect is, what is the origin and destiny of man, whether he is all matter or all spirit, and whether

intellect is in any sense distinct from the total man. Our point is that he tries to know things.

Like it or not, we have to say that there is a tendency in man to try to get sensible and intellectual acquaintance with things as they are. Whether the working, origin and nature of this tendency are from need, whether the tendency is beneficent, and whether it is for survival or for aggrandisement, is beside the point. We have to grant that the tendency is at work in man. To deny the tendency or to think that it does not or might not exist is at once self-defeating. In such a negative claim a counter claim is set up that, after all, in these acts of denial and doubt, the person denies and doubts in strict accordance with the situation as it is. A law of our being requires that we have to try to think in line with being, and this law holds in spite of prejudice and self-interest. In laying down these propositions, my mind has to try to think in terms of things as they are; and so does any other mind in affirming or denying any of them.

To be sure, we are not compelled by our nature to speak as we think; and people can put on innocent faces. All the negationists, however, have to try to get at things as they are.

Suppose a man is honestly dubious about the existence or nature of some thing, and he hesitates then to affirm anything about it. Surely in such a case, it will be said, we may not claim that his intellect tries to tend to the thing as the thing is, for the point with him is that he sincerely doubts the existence of the thing. He does try it, nevertheless; since even in such an instance his intellect tries its best to go to the thing as it is. For him, this thing's existence is a fifty-fifty proposition, and his intellect tends to the situation as given: fifty for, fifty against. In doubting, hesitating and denying, as well as in overt affirming, man's mind has to try to tend to things as they are. In brief, man's mind has to try *to think things*.

In imaginative enterprises such as children's and adults' games, and make-believe, people keep a corner of their minds on things as they are thought to be. They have to do this; reference and checks of this kind make fiction and imaginative play possible. Otherwise we should never know fact from fancy, and should

have to accept all events, as some persons do, on one plane of seriousness; which is only to say that some persons cannot play.

To argue this matter pro or con is an idle pastime. All thought, expressed or unexpressed, is with the thesis; and any thought that attempts to counter it must either contradict itself and be cancelled out, or turn around and square up with the thesis. As a laboratory exercise, the recalcitrant person is invited to try to know things other than as they are, and is invited also to try his hardest not to know.

We have to say, not as a conclusion from instances or from any premises, but from an intuition of the nature of the case and as a matter of fact, that our intellect is such that it tries to know things as they are. This is its natural tendency, its original bent, its inner and unvarying inclination. That is the way it is found in "the natural world": and, as we are treating it, intellect is an event in the natural world; it is found by men to be so, and is not made that way by men. Whether intellect can ever know many things is an additional question which has nothing to do with the matter at hand. We have merely named what intellect tries to do and have waived the question of how far it succeeds. In our present inquiry it is irrelevant whether people say that man has the designated tendency or that intellect has it or that intellect *is* this tendency.

The existence of final cause is thus established. Final cause is that toward which there is a natural tendency. Intellect has such a tendency, and we can name the object of the tendency. Concurrently we know the nature of intellect; perhaps not in every feature, but with correctness in an elementary feature. How do we know even the existence of intellect? From its action or working. We know its nature from the same source; we have no other clue to either its nature or its existence. Hence the wisdom of the method used by Émile Meyerson who said that the nature of intellect is knowable and is known by observing what the intellect on all levels has historically been trying to do.

The natural bent of the intellect is toward knowing things or trying to know things. St. Thomas has so described intellect. "Its nature," he asserts, "is to be conformed to things."<sup>1</sup>

<sup>1</sup> *De Veritate*, q. 1, a. 9: ". . . ipse intellectus, in cuius natura est ut rebus conformetur."

Garrigou-Lagrange translates these words as follows: "the essential finality" of intellect is to be conformed "to the real." The translation, though not literal, is just, for we saw that to know the innermost motus and tendency of anything is to know its "finality," and to know this is to know its nature. We do not wish to say, however, that the final cause of a thing is its nature, although Aristotle held that nature and form are fully exemplified only when the end is reached. We merely want to say that to the degree we know the natural tendency of a thing we certainly know its nature. The problem of whether intellect, as the realist supposes, is sometimes conformed to things which have a real existence outside itself, is not within the scope of the present question.

In restatement, note the saying of Aristotle: "All men by nature desire to know." A careful reading of any intelligent human action has to report that there is in man a natural tendency to know things; and this tendency, of course, is a desire; it is a drive or appetitus.

Anyone can find endless concrete instances of final cause within the given example. Take this example. A little girl, lost to the general world, hurries along our street: as she goes she thumbs a tiny ledger or notebook which seems as close and important to her as her hand; the notebook has numbers on its open face, say 1794. People can guess what goes on in the girl's mind. Her mind tries to get, and she thinks it does get, into touch with these numbers as they are; she also thinks that the numbers stand faithfully for or "refer to" something further such as a house, a year, an account. Hence (she thinks) they help her to get into precise touch with a further thing.

Of course, human intellect is notorious for error; but this fact has nothing to do with the question, except that anyone's saying that we know intellect makes mistakes is enough to affirm what we have urged. Detection of error requires true knowing, just as the possibility of fiction demands a grasp of fact.

We grant also that man needs to know in order to survive, and has to adjust himself to keep his balance in the face of a shifting world. But these facts merely restate and in no way discount what we have said, namely, that in man there is a natural tendency to try to know things.

Thus intellect in its action, and presumably in its being, has a final cause. Intellect has finality, if we may now employ this word; in the word used by reputable scholars, intellect is "finalized." We know both that it has tendency and what its tendency is; and it would be just to speak of the "direction" of the tendency, but the word might be debatable or ambiguous at this point.

What does intellect know in particular? In part, this is a relevant question. When active, intellect is always using universals; and at least in the earlier years of its possessor's career it sometimes forms universals, such as "man," "good," "robot," "dirt," and "thing"; otherwise the work of judging and concluding could not go on at all. We waive the question of whether intellect is merely "a machine for forming universals," and for forming and using these. In any case it does form and use them. This is a particular end of intellect found within the wider end of knowing. But it is a bona fide end, and we could not do justice to what is given if we neglected the fact that intellect tends naturally to form and use universals. Judged by performance, this is seen to be a specific function within the more general one. The primitive's intellect tends as inevitably as anyone's to the possession and use of intuitions and universals.<sup>2</sup> Granting this, is its proper function (as someone has remarked) "to enrich itself with realities"? Most likely so; but this statement, virtually the one quoted earlier from St. Thomas, involves a theory of knowing and of valuing, and since we are engaged merely in citing evidence for final cause, we will let the question stand.

The evidence for final cause in the realm of will has not the immediate, unavoidable quality found in the realm of intellect. As often and as far as anyone tries to deny final cause to intellect, he affirms such cause for intellect. In the case of will, this directness and inevitability of our knowing final cause does not

<sup>2</sup> Christopher Dawson says, *Progress and Religion* (London and New York: Longmans, 1929), 89: "It may seem paradoxical to suggest that the starting point of human progress is to be found in the highest type of knowledge—the intuition of pure being, but it must be remembered that intellectually, at least, man's development is not so much from the lower to the higher as from the confused to the distinct."

seem to be given; unless one were to assert a priori, as is often done, that the will exists and is a tendency to good. For persons who do assert this, it is tautological to say that will of its nature seeks ends; these persons being generous enough to grant at the outset that will is finalized. But let men define as they choose, the evidence for final cause in the field of will is strong. In this case as well as in that of intellect, not only tendency but the object of tendency can be identified.

Let us limit ourselves to conscious human striving and waive the question of whether man has freedom of choice. The first law of strictly human life is that good is to be done and evil avoided. As the latter phrase is a double negative, it may be discarded; the formula for human action then reads: Good is to be done. This is a prescriptive law, but is based on a descriptive law. What does this law mean? In life, and in the use St. Thomas makes of the notion, it means that man is to develop himself precisely as man. In the double negative and at a minimum it means that man is not to destroy himself; man's "good" in its inherent sense means his being and perfection in *toto* or in any part; and in its instrumental sense it means anything that helps him to be. He is such and such kind of being; such and such condition is his perfection; such and such things will, in fact do protect and develop and perfect him. Hence the law as descriptive states: Good and his whole good is what man really and fundamentally wants. This simply says that man radically wants *to be*. If this view is correct, we must say *a posteriori* that there is in man a tendency toward his genuine and whole good, a tendency called for the sake of convenience, "will." Thus the law as prescriptive—"Do good and avoid evil"—follows from the fact of the law as descriptive and from the circumstance of man's having intelligence.

Is there in fact any such thing in man as a tendency to be, a tendency toward his perfection and total development, a tendency of man to go toward what John Dewey called "the full stature of his possibility"? We say there is, and to say so is merely to report evidence found in general biology and evidence from humanistic study. To deny the tendency would be to deny any genuine moral dynamism and any moral life in man. To deny such tendency would be, it seems to us, to affirm that man

can be indifferent in regard to whether he shall survive at all. We affirm that man is not indifferent in regard to his being and the quality of his will-acts, and his consequent growth as man. In short, we affirm that there is in man a) a natural inclination not to wreck his human being, and b) a natural inclination (whether additional or not) to try to grow as a human being. True, if one were to consider all men in all places and at all times, counting the heads of our prejudices, our ignorance and our selfishness, some queer procedures would be seen given approval in the name of human being and growth. This is to be expected in a pluralistic human world where every man is an individual. Nevertheless, our contention is that every man, as indeed every people and time, has an effective notion of which acts make and which acts break a human being, and—the essential point—that all men have a native tendency to perform at least a minimum of the acts thought to make man and avoid all of those that are thought to break him.

We waive the question of whether the affirmed inclination can be attributed to a moral sense or merely to the ability and inclination on man's part to acquire and develop such a sense by way of social education. Nor need we inquire whether the will is spiritual, whether it is free, and whether it is distinct from man in any but a nominal sense. All that is needed is to study the mere naked bent of will.

Leaning toward the optimistic, St. Thomas states a principle which, if accepted, leaves no doubt as to either the existence of volitional tendency or its object. He says that if we look at the direction natural to will, we shall see that it tends to the truly good.<sup>3</sup> "Natural direction" may be translated as nature or original tendency, and the "truly good" as that which preserves and perfects man as a genuinely human being. In any case, man in his will-aspect is found to have a tendency toward his maintenance and growth. In short, the tendency of will is an instance of finality.

For clarity we repeat the signification of final cause. This cause is the "aliquid" of the following Thomistic statement: "Appetitus naturalis est inclinatio cuiuslibet rei in aliquid ex

<sup>3</sup> *Contra Gentiles*, 4, c. 22; cf. *In Metaphysica*, XII, 9.

natura sua.”<sup>4</sup> If anything from its very nature has an inclination toward anything, that toward which it has the inclination is called its final cause. Now human will is not indifferently any appetitus. It is a rational and fully human appetitus; it is a desire directed by intelligence. Our position is that, however man came to have such tendency, he is found to be in possession of it.

Whether the will is “meant to be,” and to be the sort of entity it is, are additional problems; we are dealing at the moment, not with the will’s origin, but with the will as a tendency. To act in view of our preservation and human growth seems to be as integral to us as any element that can be named; more integral to us than our skin. To act *that* way—that is the way we are. If we could know the source of our being, we could at the same time know the source of this natural tendency.

Are we to say, then, that “the will is finalized”? It is superfluous to argue or even contend that this is so, since people knew it all the time. Good for them in that case. They will let us state surely, after so much trouble, that there is in man something more than an act or habit by which he does good, because there is in him an inborn tendency to seek what is preservative and perfective of his being. This drive or tendency is one with his being, and is as natural to him as he is to himself.

So much for intellect and will in relation to ends. Let us cite other tendencies and final causes. Men have to admit a wider vital tendency toward the survival of the living thing and of the species. This tendency is common to man and animal and plant. Whatever the living thing may be in its totality, it tends to goals, and although for the sake of method one might neglect to study this tendency, one could trace a denial of its existence only to inhibitions or unacquaintance with living things. But the story remains largely untold when we say there is such tendency, since anyone can name its main objects.

As soon as the living thing begins to be, it begins to strive to remain alive. This original bent is prenatal, and it does not cease till life ceases. To cite the seeking of the specific goals of

<sup>4</sup> Ia, q. 78, a. 1 ad 3.

survival and growth is to name the quality of living things as against all nonliving things. To be alive is to try by might and main to remain alive. If need be, the living thing struggles to survive, and always there is need. Bare tonicity and equilibrium require effort, and the bourgeois understanding of life as an easy ride for which one pays nothing in the way of discipline and obtains everything, is contrary to good biology as well as to human history and achievement. To live means to pay a price. To expect something for nothing is to forget biological process. In a word, biological process is a repudiation of the bourgeois spirit. Life itself, to say nothing of excellence, is always costly. Decline is cheap. As Ortega insisted,<sup>5</sup> the bourgeois spirit (in contrast to the peasant spirit which always pays the bill and to the noble spirit which ideally pays the bill) is a denial of life.

For a hundred years, people have re-emphasized this inclination and tendency in the phrases "the fight for life" and "the struggle for existence"; thus summing up the biological thrust and drive for integrity of being. It is not likely that anyone will deny the fact of struggle. The law of survival is the first law of life, and whatever use or misuse we make of this law as an ethical and political principle, it seems to be as real and as old as life itself.

Within each living thing, the bent for survival is aided in many ways: in ingestion, in digestion and assimilation of food, respiration and circulation, in throwing off germs and fighting other enemies, in healing wounds, in a perpetual readjustment within and without to environment, and in responses to change in temperature and air pressure and light. Living things have a tendency to try with all their powers to survive. We know that this is the tendency or "law" because we see that a living thing does so strive. Nothing gives in to death without an organic struggle for life. What a living thing would be like without this tendency and consequent perpetual vigilance and effort we do not know, and we have no reason for supposing that the sublunar living world could exist without this tendency and struggle. Even if some living thing at some time in some of its functions should fail to exhibit the tendency, we would still

<sup>5</sup> Ortega y Gasset, *The Revolt of the Masses* (New York: W. W. Norton, 1932), ch. 7.

have to say that life in general and "for the most part" has the tendency.

The vital tendency is given, and is legible. By its nature, life has a definite tendency toward a definite end. This means that life has a final cause.

Next we have the question of natural tendency in social life. Many theories have arisen concerning the origin and nature of human social life, and the end of our tendency to live a social life cannot be named to the satisfaction of all. Yet everybody concedes that the tendency exists, and that it has an end. If, then, it is "by nature and for an end" that men live in society, this inclination shows the existence of final cause. (The tendency toward social life may be seen as a tendency embraced by the more general tendencies toward survival and growth.) So, too, with regard to the demand for freedom: man naturally wants to be free, and though conditions in most places most of the time have crippled the demand, we doubt that it can be extinguished.

The tendency to propagate is also clearly given. Knowable and known both in its existence and its object, it is natural and integral to biological being. Whether this tendency exists fundamentally "in view of" the individual rather than of the species, we need not try to decide. But we mention the theory of Aristotle, repeated by St. Thomas who says that the basic striving of nature—the "ultima naturae intentio"—is not to produce the individual or the genus but to maintain the species, and that the tendency of nature is not to generate "animal" but to generate specific animals.<sup>6</sup> The tendency of nature is especially toward those things necessary either for the survival (*conservatio*) of the individual such as food, or for the survival of the species such as the acts of sex; and the "natural tendencies" are the sources from which everything else arises.<sup>7</sup>

The eye tends to see. Some may fear this innocent assertion as a kind of trick, and others think it naive because the fact is so evident. To say to the former, if the eye does not tend to see, what does it tend to do, would merely be begging the question. But no elaborate argument about the matter is necessary.

<sup>6</sup> Ia, q. 85, a. 3 ad 4 et ad 1.

<sup>7</sup> IIa IIae, q. 155, a. 2.

Obviously the working of the several complicated parts in the organ of sight is a cooperative working and the objective of the working is actual sight.

The same may be said of the other senses. The ear tends to hear; its complex ensemble of bone, cartilage, nerves and blood vessels works naturally toward this effect. We might notice too, though the list is interminable, that the sex organs and their functioning naturally tend to generation, and that the digestive system naturally tends to nutrition. It is first of all by nature that any organ tends, by devious ways, to simple, unified and beneficent consummations which may be called ends.

The upshot is plain enough. The biological world is full of goal-seeking and an open source-book of final causes. But some people stop there and say that outside the living world, final causes do not exist or cannot be known. For example, in his work *The Aim of Human Existence*, Rignano allowed that the universe is "capable of finalism" only in its biological part.

Man has two simple ways of inquiring whether the inorganic has natural tendencies. One way is through the organic and the proved or assumed continuity of nature, and for those who see the whole world as unified and continuous, it is difficult to suppose an organic realm of *all* tendency and an inorganic realm of *no* tendency. Granting continuity, one must say that the organic is pervaded by tendencies whose objects can even be named; the organic rests on a base of the inorganic, and for that reason it may be said that the inorganic also must somehow be finalized. In this connection we are happy to quote the strong teleological and interactionist statement by G. F. Stout:

The adaptive behavior of men and animals, which Common Sense refers to the will and intelligence of embodied minds, is only part of the immensely more comprehensive teleological order of the material world in general. This includes the complex organization of factors and processes in the life of plants as well as of animals. It includes also the systematic complexity of atoms and molecules and of their interrelation, e.g. in the carbon compounds. It is traceable throughout nature both animate and inanimate. Indeed, as life is only one side of the transaction going on between organism and

environment, teleological order must belong to the whole physical-chemical process in which both are essentially implicated.

The adaptive behavior of men and animals, which is in some way correlated with their mental processes, is not only part of this general order; it is a part which is through and through dependent on the whole. . . . There is a vast multitude of facts not only analogous to each other, inasmuch as they present teleological order, but interwoven in one context.<sup>8</sup>

Of course, for any who hold reductionism—if any do really hold it—believing that man is reducible to the animal without a remainder and the animal to the plant and the plant to brute matter, in each case without a remainder, whatever is found in the organic has to be there already in the inorganic.

Our suggestion is that the organic and the inorganic are one in some basic senses; that the thrusts and drives of the two may have some common root; and that the matter contained in one is fundamentally the matter contained in the other. Evidence for this last statement is found in the fact that brute matter is changed into living matter and is changed back to brute matter. To hold that tendency and telic functioning are given in the organic but not in the inorganic seems like asking people to disjoin in theory what nature has made one in fact. And now that we have discovered that natural alchemy is perpetually transforming some elements into others, the case for the teleological continuity of nature is obviously strengthened.

As far as we are concerned, this strong case for final cause in inorganic nature is not as strong as the second argument. The second is based on the “order” of the inorganic, on the laws of affinity and non-affinity, of valence, of repulsion and attraction, of cohesion, and so forth, a body of phenomena summarily stated by McWilliams in his *Cosmology*.<sup>9</sup> What we commonly call the “laws” of nature, for example the laws discovered in

<sup>8</sup> G. F. Stout, *Mind & Matter* (Cambridge University Press, 1931), 140-41, 148.

<sup>9</sup> James A. McWilliams, *Cosmology* (second edition; New York: Macmillan, 1933), 192 ff.: “Physical laws are tendencies in matter; but some matter has one tendency, other matter another tendency; and in each case the tendency is fixed and determined. This variety of fixed tendencies . . .”

physics and chemistry, are reports of the regular working of nature. They attempt merely to transcribe the discovered operations of some sectors in nature; and these operations exhibit a notable regularity. Elements unite in exact proportions and under exacting conditions. We see tendency in all instances wherein written laws are now roughly possible. We see a definite inclination to do the same things in the same ways, precisely as if such working expressed the inmost nature of the elements in question. We see fixed ways of acting, a nicety, a "choiceness," not a random running together or a haphazard venture; not an acting in just any way, but in a decisive way. It may be that we cannot say what is the consummate end of the inorganic. No great leap is required, however, to repeat with Aquinas that it is dual: a) *to be*, in some kind of dynamic status quo, and b) the order of nature. These are the results perpetually achieved. We know that things resist interference, or to use St. Thomas' word, they resist "disintegration." They keep unerringly to one line, with order as the constant resultant; and it seems just to let Plato and St. Thomas say that this order is good and the best thing in the world, and to let Pierre Rousset suggest that it is always a decorous and beautiful end.

We have spoken of what is empirically given in nature, of what is almost on the surface and open to untrained minds; and in this regard the method of the present chapter is that used by Tennant in his chapter on teleology.<sup>10</sup>

It is true that we have merely cited instances. These fall under such well-known headings as the law of self-preservation, the law of self-growth, the first law of intellectual life, and the first law of moral life. Our conviction is that these four laws, though coming into our knowledge in specific forms, have a common ground, so that they are radically one law. So much for life, and now—"not a snatching matter," but a second generalization—we have ground for affirming natural tendency also in the inorganic. This affirmation is made in part on the basis of a continuity between organic and inorganic, and on

<sup>10</sup> Frederick Robert Tennant, *Philosophical Theology*, II (Cambridge University Press, 1930), ch. 4, "The Empirical Approach to Theism: Cosmic Teleology."

the basis of the specific tendencies which types of things in the inorganic are seen to exhibit.

The conclusion is overwhelming, but not exhaustive. Observed instances of such and such large classes show specific tendencies, and sometimes we even know the object of the tendency. No one need compile immense lists of instances, since any one instance affords evidence of some finality in nature.

# The Universality of Final Cause

OF all the philosophical doctrines that have had to fight for their lives, final cause has proved itself the hardest. It is the bad penny of philosophy. Philosophers are always either attacking or defending it—as if it deserved both. Empedocles ruled it out of existence, but Aristotle reinstated it with honor. Bacon paid great tribute to it, and yet pronounced it sterile. Hobbes and Spinoza discredited it; and yet we are going to claim that, in spite of themselves, they are Aristotelian teleologists. Dewey kept assaulting the “fixed and final,” and yet one wonders whether Dewey did not deceive himself. Professor Henderson<sup>1</sup> said that he could not go as far as “design,” claiming that the human mind reaches its natural “frontier” just short of this point; and yet he said that final cause, in the sense of telic functioning, is undoubtedly the constant teaching of the Western world. Bergson appeared to waver between a planned world or divine telism on the one hand and an iron mechanicism on the other; yet he declared that the doctrine of final causes will

<sup>1</sup> Lawrence J. Henderson, *The Order of Nature* (Cambridge: Harvard, 1917), 204.

never be defeated, that if it is ruled out in one form, it will reappear in another.

Aristotle was generous to final causes. He said that final cause is at work in nature and that finality is a law with few exceptions. Almost all events have final causes; but exceptions occur. Nature is the scene of some freaks and miscarriages, events which lack final causes: they are deviations from the law of finality.

Aquinas used Aristotle's doctrine here as everywhere, and it seems to us that he went beyond the Philosopher. He said that all events have final causes. Nature knows no exceptions and radically allows no chance or freak. Not so "will" and man's consequent doings. Things can "happen" to us and may be literally called coincidences in the human picture. Each of two men is going about his business, then they meet. From the point of view of the deliberate goal-seeking of each, this meeting can be coincidental; in their own minds it is a lucky and non-finalized event. But it is a "natural" event, too, and as such it is teleological, because, as will now be shown, every event is teleological.

The Thomistic thesis is that "every agent acts for an end." *Omne agens agit propter finem.* This thesis, which disregards Aristotle's or anyone's qualification, is often repeated. It may be translated, "Every event is teleological." We take it to mean all it says, and in that case it should be read: Every event has to have a final cause. The main matter of this chapter is a statement of the ground on which Aquinas so tidily universalizes finality.

How does he claim to establish this position? Simply by following the logic of Aristotle's principle regarding the determinateness of real being. He never says it, but he is evidently convinced that Aristotle's logic on this point has been held back from its proper conclusion. Aquinas sees no reason for not completing the logic. Operations have effects which have to be determinate because operations are determinate; and operations have to be determinate because the real being, from which they arise and from which alone they can arise, is determinate. Every event, then, has to be teleological and headed toward an end like itself and like the agent.

We saw that Aristotle committed himself to exactly the same

view, and we shall see Spinoza affirming it. But Aristotle was impressed with what appeared to be irregularities in nature, and backed away from the logic of his own principle. He said that nature is teleological, almost all events having final causes. He declared for a teleology which, nevertheless, is so qualified as to allow some spontaneity and automatism.

St. Thomas' universal and absolute telism allows the work of man, but not the work of nature, to go "a-gley" and effect genuine encounters. At the same time some of its own features are of considerable interest, and the real reference in some passages of his most classic chapter on that subject might raise a question for even the devout Thomist. We refer to chapter two, Book III of the *Contra Gentiles* where the thesis stated at the outset is that any agent in order to be an agent acts "propter finem."

As proemium we remark that the proposition is taken to be meta-empirical, and so too for the main proofs of it. The proposition to be proved, and again when it has been proved, stands on its own feet and is not said to have anything directly to do with the question of a possible divine direction of nature to ends. It is not suggested that God either as a person or a force moves the world and that therefore the world goes pointedly to ends. In the preceding chapter, Aquinas did say that God rules and guides all things, but this doctrine is not offered in any way as a proof of the present thesis. Again, when Aquinas is confident that he has proved his point, he does not proceed to say: Every agent acts for an end, but some agents are blind and are therefore directed to ends by a divine light. Rather, his treatment has an air of being complete, once and for all. Only in later chapters does Aquinas inquire into the quality and possible identification of the end or ends of nature; and only in other treatises does he ask about a mind-director of nature.

Let us begin as Aquinas does in Book III, by summarizing his two earlier Books. There is one Absolute which men call God and which has given being to all existents, and is itself the first being and first source. The giving has been done freely, God being master of his works; his ruling of the world is perfect in the sense that he needs no assistant agents and no matter or basic stuff. Now an agent with will and freedom directs his work to an end, and we may even say that "end"

is the object of will. Besides, each thing reaches its ultimate end by its own functioning, a functioning inevitably informed by him who gave it the principles of its action. God is ruler of all and is ruled by none; and because he is perfect as being and as cause, he is perfect also as ruler. The preceding Books then have been on the perfection of the divine nature, and of the divine power as cause and ruler of all things; and the present Book will be on its perfect authority or dignity as end and ruler of all things.

With so much presumably proved, it may seem strange that Aquinas should set out to show, all questions of God apart and on meta-empirical grounds, that every event has to have an end and be finalized. But that is what he does in chapter two.

Final cause is that toward which anything by its nature tends; and the present thesis of Aquinas is that if anything acts, it tends, in its acting and strictly by nature, to something. This is its end and final cause. Chapter two offers various proofs, the most fundamental and decisive of which is based on the idea of determinate being having a consequent determinate like operation and a further consequent like effect. This last is the final cause. If there is action, such consequent like effect called "final cause" must be. Some of the several proofs follow.

1. Actions are determinate, because agents and beings are determinate. They are not simply "agents" and "actions" in the sense of abstract generalities and universals, but they are precisely and determinately *these agents* and *these actions* consequent on and like themselves. The action does not come from nowhere, but from the agent: like agent, like action. Nor is this the last word we may say on the subject. The effect also is like these; it has to be like them: it is their effect, and not the effect of any other. The tension and effort (*conatus*) of the agent necessarily have to tend to something determinate. Accordingly the three terms may be put into a compact formula: The agent has to be determinate, and its tension-effort has necessarily to be, through determinate action, toward determinate effects. More summarily: Like agent, like action, like effect. This last is that toward which the agent in acting tends and must tend. It is thus a final cause. Any agent in acting has to have a final cause.

2. Neither in the order of agents nor of ends is it possible to

make a crossing *per infinita*. "The infinite" is that which by definition cannot be traversed. Hence there must actually be an ultimate end of any series of agents and actions and ends.

3. In the person, who is an agent with mind and will, there is an advance conception of the mind-will effect. So, too, in the nature-agent there is a corresponding advance set, a pre-set, of the nature-effect; and through that pre-set the action also is loaded and set toward "just this effect"—not toward any and all effects, but toward this precise and determinate one.<sup>2</sup> Besides, do we not observe that fire produces fire and not just any effect, and that the olive produces olives?

4. A being in the permanent condition of indeterminateness toward all effects would be like the man who jumped on his horse and rode off in all directions. It could not act and would effect nothing, but would be as sterile as Bacon's final causes. But there are agents producing effects. Hence both agents and ends are determinate. But a determinate end toward which a determinate agent determinately tends is a final cause.

5. The selfsame point can be at once the end of two distinct but related kinds of action. The archer hits the mark, we say; and so does the arrow hit the same mark. The hitting of the mark is a final cause of the archer's action: it is that toward which his present cognitive action tends of its nature. It is also the final cause of the arrow's flight, and is that to which the flight of the arrow, or the arrow as flying, of its nature tends. The two agents have a co-terminus. This, as Aquinas says, is the most obvious sort of final cause; it is concrete and is like the doctor acting to cure someone, or a man running to a goal. Of course, it does not matter whether the action terminates immediately in the agent (as knowing and feeling sometimes do) or in an exterior product such as a built house or a neighbor's health. Whether immanent or transcendent, the end is "determinate"; the doctor's aim and end cooperates with a sick man's nature toward the natural and "determinate" aim and end of nature.

In all cases, the agent while acting tends toward a final cause.

The key can be found in the fact that goals are fixed, set, determinate. They are so because agents and consequent actions

<sup>2</sup> "Actio ad hunc effectum determinatur."

also are so. In the cited chapter, Aquinas gives the principle: As the agents are, so are the actions. Or in his technical language: Actions are specifically different according to the diversity of agents. Aristotle said that a thing's acting exhibits its nature, which is the inner principle and source of its acting in that way. In St. Thomas' language, a thing has a "natural tendency"<sup>3</sup> to act as it does: in line with itself.

The most terse statement is this: Like agent, like action, like end. This is a principle we all use and have to use. It is a principle employed in social living and in every science and art. In chemistry we speak of reactions and re-agents, but the technical prefix does not change their status; we know chemical elements by what they do, and not otherwise. We judge cars by their performance. We judge men the same way, in fact that is all we can do; conduct is the key to character. The behaviorist approach to psychology, through the literal behavior of men and animals, is an entirely valid approach, and whether or not the only proper approach, it is a necessary one.

We say a boy is "a comer." That is a prophecy, and time will tell. But we mean it here and now when we say, "That horse looks like a winner! That is a money-horse!" Aquinas is saying, if *that* is the kind of runner or agent, it will run a winning race, and that will be the character of its finish. As the agent, so the action, and so the end. Handsome is as handsome does—and handsome does as handsome is. Any agent, because of the kind of agent it is, tends to an action like itself, and thereby to an end like itself and its action. It does this naturally. The person, having intelligence and will, does it naturally, knowing what it does—otherwise it would not be a personal agent. The nature-agent, that is, the not-personal agent, also does it naturally. And an agent, such as the shot arrow, insofar as a second nature is imposed for the moment on it, also does act naturally, acting quite in accord with this nature and producing corresponding results.

A common Thomistic summary of the point is this: *Omne agens agit simile sibi*. That is, the agent's effects are like itself. Its mark and brand is on them; an unmistakeable inevitable mark—such as finger-prints.

<sup>3</sup> *Inclinatio naturalis*.

St. Thomas' statement of the thesis in the chapter which we have used, and his restatement of it when he concludes at the end of each proof, show the force of his position and the nuance of his meaning for "final cause." His thesis is that every agent acts "for" an end. This is variously stated. For example, "the agent in acting tends to an end." In the (nature of the) action itself, it has a tendency to an end. "The conatus of the agent is toward something determinate." "Every agent tends to a determinate effect." At the beginning of the next chapter this same thesis and the proof of it are summarized in one sentence: "That every agent acts for an end is evident in the fact that any agent whatsoever tends to something determinate."

The conclusion of chapter two shows what the author thinks the fruit of his arguments: "Thus the error of the ancient philosophers of nature is thrown out, the error of those who said that everything happens from mechanistic necessity, and who wholly denied any final cause in things." The phrase which we translate "from mechanistic necessity" is *ex necessitate materiae*. That it should be so rendered is clear from a simpler passage, also in the *Contra Gentiles* (II, 39) where the conclusion is: "Thus the opinion of the ancient philosophers of nature is thrown out; the opinion of those who allowed matter as the one sole cause, everything occurring from its rarefactions and condensations; they had to say that the things we see in the universe are distinct from one another, not because of any directive tending, but because of chance encounters with matter." They allowed only matter hitting matter as cause and did not include any form or end as cause.

St. Thomas' point is the same as that of Aristotle: it is not from mere matter and its necessity that things occur, but also from the form and from a teleological necessity. Form is the principle of determinateness, matter the principle of indeterminateness. Because of form, being is determinate, and action following being is and has to be determinate, and the effect, consequent on the two of them, is and has to be determinate; and this effect, to which the agent naturally tends, is a final cause. It is by nature and "for an end," that is, as moving to a determinate effect, that the swallow builds her nest and the

spider spins her web. What we mean by final cause is precisely that effect to which the spider or any agent "of its own nature" determinately and naturally tends. Action cannot be without such cause.

Hence we may speak either of formal or teleological necessity. This is the complement of matter-necessity. As Aristotle often said, the form and the end cannot be wholly disjoined and are in some sense identical. The form of horse is not perfectly exhibited in a colt, the oak is and is not "all there" in the acorn. Determinateness of being is given originally in virtue of the form, but in a changing being new and fuller determinate being is given at every instant. Action, then, cannot be understood without this wholeness of being to which the agent, if it is agent at all (*in agendo*), naturally tends.<sup>4</sup>

In treating other matters, Aquinas often incidentally restates his case for final cause. The most compact statement that I have found is in the *Summa* (Ia, q. 19, a. 4). The point to be established here (irrelevant to us just now) is that God's will is the cause of things, and one of the proofs offered is from the character of the natural agent, which means an agent without will. This kind of agent produces just "one effect," and this is a determinate effect, since, unless hindered, nature works in a uniform way. Nature does this, in fact; but why does she do it? "Because the nature of the act is in accordance with the nature of the agent; and hence as long as it has that nature, its acts will be in accordance with that nature." A reason is given even for this elementary position. The reason is that "every nature-agent has determinate being."

It might be supposed that will-agent, since by definition it is indeterminate "ad multa" and not fixed to one way of acting, does not tend to an end and does not of its nature have a final cause. The supposition is false, for four reasons. First, the will goes to an end suggested and given by the intellect; this is the case of a man's setting up a goal and going for it, which is

<sup>4</sup> This principle of determinateness of act and of end is expressed by W. D. Gotshalk, *Structure and Reality* (New York: Dial Press, 1937), ch. 6, "Teleology." These words (pp. 208-9) make the point: "The inner nature of a continuant at any time determinates the character which the continuant will show."

evidently to act for an end. Second, the will, in acting, is a determinate being with a determinate action and determinate effects; although before acting the will is indeterminate to that action and those effects. Third, the will's indetermination is only with regard to the means and never with regard to its own proper end, "the good," which is set for it by nature. Lastly, the will itself is a particular "nature." "The will naturally wills something"; not everything and perhaps not this particular thing, but "something." "The will is founded on some nature, and it is necessary that the way proper to nature be shared in some degree by the will. . . . For the very *esse* which is through nature is prior in any thing to the *velle* which is through the will."<sup>5</sup>

In brief, the will has to be itself; and whatever it is, it is dynamic and not yet fully itself, and accordingly is tending to its telos or end. It is necessitated by its own nature and by the end which is the completion of its nature. This tending to its perfection is no more foreign to it than is its being, which is called its "first perfection." The tending is integral to its being. Like everything else, the will is submissive both to form-necessitation and to end-necessitation.

The Thomistic position, then, is that absolutely every agent tends naturally to a telos which is the completion of its being. Every nature-agent does this, and in a radical sense every agent is a nature-agent. The single requirement for this is agency. And the requirement for agency is individual being of a dynamic sort. Of course, an agent does not so act as unaffected by and in independence of other beings—because it does not so exist. An individual being may be in possession of its end and completion; then it "rests in" the end; otherwise it naturally tends toward the end.

Nevertheless, the telos is not universally achieved. On the part of nature-agents and also of will-agents, there is such a thing as failure to arrive at the end, or, as Aquinas says, things or men can fail "to come through." This is not because the tendency to the end is not always present. It is present if the

<sup>5</sup> Ia IIae, q. 10, a. 1 ad 2. Cf. Jacques Maritain, *Freedom in the Modern World* (New York: Scribners, 1936), 7.

being is present, but due to circumstances it is not always effective. Now since "to act for an end" and to tend toward an end are identical, and since an agent does tend even when it does not arrive, there evidently is consistency in holding that, in spite of "failures," tendency to end is always given. This is to repeat that "any agent, in acting, acts for an end." The pivotal notions to be considered here are the particular order and total order, chance and fortune, monstrosities, and lastly fate.

In some cases, the *particular order*—that is, dynamic being effecting its own completion by way of its proper operation—is not exemplified. Yet even then total order, or the order of the universal cause, remains. Circumstances limit the effectiveness of agency; which only means that form working toward the end does not operate in a void. The normal direction is this: agent, by way of determinate operation, to end. But something may hinder the effectuation of this particular order. The nature-agent then lacks either the power or the opportunity to do what it naturally tends to do. An animal naturally tends to walk along in the normal manner; but if it has a crooked leg, it cannot do this. Such a circumstance is called *chance* in relation to the particular order which is the animal's natural tendency to walk; yet in relation to total order the given eventuation may conceivably be provided. A tree would grow, but it cannot. It has a natural tendency toward that end, but because of circumstances the tendency is ineffectual. The stomach tends to digest, but cannot always do so. In relation to the natural tendency or the particular order, the incapacitating circumstance is then called *chance*. Fundamentally, or in relation to total order, no such thing as chance exists.

Will-agents also have a natural tendency to a proper telos; in man's case, to a wholeness of human life. Everyone (we suggest) knows this. If effectuated, a tendency of this kind would give us total human order, although of course not total order. Everyone also knows that this total human order can be countered by a minor wish of man. A particular wish can be at loggerheads with the fundamental will and primal tendency of man to his completion, and of the species to its final and total good. As Whitehead said, and this is an Aristotelian position, evil consists in "things at cross-purposes."

These two classes—that of things at cross-purposes with things, for example a body prevented from assimilating food or a tree from growing, and a human wish countering fundamental human tendency—are put in one word by Aquinas. The word is “sin,” either the sin of nature or the sin of man. The straight effectuation of the tendency of nature and of man is rightness in nature and rightness in man. Anything else is sin.

A man sometimes does what he “did not go to do.” He happens to hurt himself or another. This is “outside his intention.” He makes up his mind to walk down the street with his hands in his pockets; he falls and his back is broken. This is bad luck or fortune; it is not included in his meant tending to an end. But it is evidently within total order or the tending of things to ends that, when forces of certain kinds meet, part of the resultant has to be a broken back. (This statement may serve as an advance reply to Darwin’s uneasiness about the redoubtable atom-configuration known as his nose.) When a man plowing a field finds gold, this also is luck. The man’s telic functioning is to plow in order to plant, and finding gold is beyond his willed functioning; but even this lucky concurrence goes to fulfill the nature-working of the nature-things involved. And when two men “happen” to meet, this again is good or bad luck. From the point of view of each man’s deliberate tending to a goal, the meeting is sheer chance or luck; but within the larger working of things to ends, it need not be so.

By way of general summary, we make two observations. First, chance and luck or fortune in a sense do exist. But in a broader view they are non-existent. Second, the tending of nature is a case of necessitous working; the form naturally and necessarily works toward the telos. But the necessity, though genuine, under another aspect is hypothetical. The tending is absolutely necessary, the arrival is hypothetical.

Quite clearly, then, the law of finality is universal. Every agent acts for an end. This may be stated, as St. Thomas appears to state it, in an if-form. Suppose there were no actual agents. Yet if agent as such is to have any intelligible being, it must by its nature tend to an end. This is so true for Aquinas that he says that nature is in a real sense fated. He rejects the

position that everything must be, and be as it is and do as it does, but he approves the definition of fate given by Boetius who says that "fate" is the set-up or disposition immanent within things. To deny the existence of this would be to deny the existence of forms and teleological activity. As Aristotle said, it would be to deny nature itself.<sup>6</sup>

Objections may be raised against the generalized thesis that absolutely every agent acts "for" an end. For example, it may be said that the only knowable "natures" are universal concepts such as "man" or "action," and all admit that these do not act. It is true that the agent bears the common stamp of its determinate kind, such as dog or man or benzine, but it is also true that the agent is an individual within that kind. Hence it can no more go wholly outside that kind in its action than it can go outside itself. As the biologist Needham has said: "We act always in character." This is true of us and of all agents.

A more difficult question, because it seems to challenge a basic assumption, is this. How can we know natures and consequent tendencies, unless through a wealth of observation? Can we know them in the abstract, or from seeing one agent act once? Did not we ourselves say with Meyerson that the existence and nature of intellect are known only from seeing the intellect repeatedly in action? How then can natures be known *a priori*? This fundamental question can be differently stated. If I know ends, I know tendencies, and if I know these I know natures; but a) can we know natures at all, Dewey having remained to the finish adamant against them? and b) even if we can, how can we do it except through observation of constancy in action?

Probably we have supposed a knowledge of some natures or determinate kinds of being. This supposition, however, is not necessary. For it is clear that only individuals act; whether they belong to a *known* determinate kind is not important here. The confusion is a confusion of knowing that agents must come

<sup>6</sup> On particular order and total order, see Ia, q. 103, a. 7: on chance, luck and sports or monstrosities, see Ia IIae, q. 21, q. 1; *Contra Gentiles*, 2, cc. 39-42; and *Contra Gentiles*, 3, c. 92: on fate, see Ia, q. 116; and *Contra Gentiles*, 3, c. 93.

from a determinate kind, and of knowing the determinate kind from which they come; it is a confusion of nature (kind), and *the* nature; end, and *the* end.

Are we to say, nevertheless, that the final cause "is desired" by the agent?

The end or final cause is in fact desired—in a precise sense of the word "desire." The agent as agent has a tendency toward that end; and desire is the "inclination or tendency of anything toward anything." Hence, the agent has inclination, tendency and desire.

The thesis stated at the start of the present chapter is: Every agent has and must have some final cause. And this is also the conclusion. In an earlier chapter we saw empiric evidence for the existence of final causes and were able to name some specific final causes, such as conservation and growth. Here we attempt to name none. In this chapter we waive also, as subsidiary,<sup>7</sup> the question of whether it is self-evident that every agent has a final cause. Whether final causes in either the restricted or the general sense are "meant" was not a part of the present problem.

<sup>7</sup> Maritain in *Sept leçons sur l'être* (Paris: Teque, 1933) and Garrigou-Lagrange in *Le réalisme du principe de finalité* (Paris: Declée, de Brouwer, 1932) make much of this problem. Both of them, as well as M. D. Roland-Gosselin in *Essai d'une étude critique de la connaissance* (Paris: J. Vrin, 1932), also make much, in this connection, of the principle of "sufficient reason." Unfortunately, none of them convinces the reader that this principle is needed in the present proof or that it is in any case an undeniable metaphysical or methodological principle. The best study of St. Thomas' principle of finality is E. A. Pace's "The Teleology of St. Thomas," *New Scholasticism*, I (1927), 213-31.

# *Order, Purpose and God*

MUCH water of various kinds has run under the bridge since Aristotle's time, and according to Jaeger even in Aristotle's time. The Greeks were sure that reason was equal to any and all problems set by reality. Things seem more difficult now, positivists finding themselves stopped by the data and an existentialist such as Sartre refusing the data. The Greeks were supremely confident that man is important, and though they accepted slavery as the way of nature they thought that at least some men are masters. We have our difficulties and hitches. Though we have honestly struggled for freedoms, we are encumbered and tied up by our own lifelines. Our achievements get in our way; for instance, the bomb and the machine. We feel anguished and poor and naked, shoved into a corner at the edge of the world. We proclaim science the only defensible tool, and yet it is only in Wellsian and Deweyan moments of exhilaration that we suppose science could reach and solve ultimate problems.

Water has also run over and around that great human bridge which the Greeks built. For the Christian, tying beginnings and ends together seems easy; alpha does not seem at all foreign to

omega. The Christian thinks he is, in a sense, Greek and in basic senses much more than Greek. His ideal man could do with relatively little science, as the St. Francis of the thirteenth century did and as the St. Francis of any century does. Whatever is needed to save man is given in nature and grace, if man will simply "correspond."<sup>1</sup> When we ask about purpose, we might even be told that, strictly speaking, there can be no such problem. "To ask whether there is purpose, is blasphemy!" Almost any question is a hoax, a temptation of the devil. When questions are asked and answered, as in medieval theology, the procedure may look like a kind of fiction. In fact, for most Catholics who "take philosophy" in American schools in the twentieth century, philosophy tends not to be an investigation but a set of ready answers; the textbook is like a cookbook or a body of household remedies.

The Christian of any century who has vigorous thinking habits seems to have been given much more than the wisest Greek; and whatever the truth and validity of some factors in this "given," it is possessed and has its effect in individual and social life. The Christian expects order, and order exists. Let science then find out what is already known; let Einstein bump and bruise his mind to learn that space is finite—something that we knew from reading Job's report that God hung "the North" on empty space. Some human disorder may well be anticipated and is always found. Yet the cosmos has meaning, it is directed by an intelligence to a good end. Every Christian knows all this, and if philosophy does not find it out, so much the worse for the feebleness of the unaided human mind.

Most of all, we have intimate knowledge concerning the nature of man and the love of God. Man is "little" and "wretched," he is next to nothing and if not sustained in existence would "fall back into nothingness." Yet he is not intimidated; he knows that he is great. The greatness and the misery of man treading humbly on the grass and on occasion defiant and spitting at the stars, are evident to more than Pascal and Kierkegaard. In any

<sup>1</sup> Cf. the remarks in Sean O'Faolain's novel *Bird Alone* (New York: Viking, 1936), 156: "Have *sense*, boy! You know there *is* a meaning. You can't know what the meaning *is*. It's a mystery. For God's sake, let it alone."

case, waves of opinion about man's cosmic locus and status may be disregarded, for it is known that he cannot be radically unimportant. Man is clothed in things borrowed from God; and even the world itself, it is affirmed, is known to be on its way from God to God. Hence questions of purpose to say nothing of questions of mundane teleology are as though answered before they are asked.

In this way it is known that all things have inner telic meaning: they go, as bullets shot from guns, to objectives which are completions and ends. The world, taken as a whole universe, also does this; it has an autotelic élan working within it. The world has also an extra-mundane reference. Did not the pagan Aristotle say that it has a final cause transcending itself? On its way, it is directed from within by an immanent natural law, and fundamentally by an immanent-transcendent mind.

Does all this amount to pious affirmation? Some people, now and always, say that nature in its being and its working is inexorable, blind, oblivious, unfriendly, improvident, a juggernaut. Is it not, therefore, nonsense even to ask, with Roy Wood Sellars for instance, whether the cosmos is "friendly"? Would it not make more sense to say with the perpetually despairing Bertrand Russell that man's moments of intelligence and freedom are epiphenomena between meaningless matter-in-motion and meaningless matter-in-motion? Why the mockery of saying that mad and intolerable nature is intelligently and paternally directed?

These are interesting expletives. But it is simpler to be impatient and outraged at the too easy and too good position of the Christian belief on world-meaning and man's meaning than to show that the position is essentially incorrect. The Christian claims to have more than the Greek, and more than the modern non-Christian. He claims to have every good and every truth had by the others, and to have something in addition. The Christian believes that every hair of his head is numbered and not a sparrow falls to the ground without the Father's care. The question now, however, is not what the Christian believes, but what the Christian philosopher affirms as proof in the present context.

Whether the world is to be regarded as directed by an in-

telligence is a constant problem. What sort of proof does an Aquinas claim for his affirmative reply? For the purpose of this study, it may be granted that something always was; something is eternal, and has to be. With this granted, how does one go from that which eternally and necessarily is, to a personal God directive of the universe? That Which Is appears to be a different assertion from He Who Is. Is there any intelligible philosophical road to God in the sense of a person?

Aquinas has an easy, non-philosophical procedure; that of faith. Like any Christian, he believes in a personal God. Consequently his perpetual going from God to man is valid for theology. As Aquinas explicitly states,<sup>2</sup> this is the direction of theology, in contrast to philosophy which begins with experience and things and goes to God.

The following are instances of St. Thomas' presupposing an intelligent God and then readily deducing the order and the perfection of the order in the universe. He says, "Once we suppose divine providence, it is evident that the whole community of the universe is ruled by divine reason";<sup>3</sup> and a little later: "Just as a man by giving orders imprints a kind of inner principle on the acts of the man subject to him, so God imprints on the whole of nature the principles of its proper acts. In this sense God is said to give commands to the whole of nature, as Psalm 148 says: 'He has given command and it will not pass away.' And for this reason all the motions and actions of the whole of nature are subject to the eternal law."<sup>4</sup>

The question then becomes, not why, given an intelligent God, Aquinas thinks there is an eternal plan and law in nature, but, more radically, why he thinks there is an intelligent personal God.

It is insufficient to refer to the doctrine on Providence, established earlier by Aquinas. For there<sup>5</sup> the thought has other and greater presuppositions; namely, that God is, and is the cause of all the good in things, not only in point of their substance but

<sup>2</sup> *Contra Gentiles*, 2, c. 4.

<sup>3</sup> Ia IIae, q. 91, a. 1.

<sup>4</sup> Ia IIae, q. 93, a. 5.

<sup>5</sup> Ia, q. 22, a. 1.

in point of their order to an end. "This good of order existing in created things was created by God." God is "the cause of things by his intellect," and there is in him beforehand a pattern of all effects, and a pattern also of their order and reference to an end. Such a pattern is what is meant by Providence. In the next article, St. Thomas says that the causality of God extends to all kinds of beings, no matter what their relative permanence, and to the constitution of both species and individuals; and that God knows things in general and in particular, his knowledge being related to them as the knowledge of the artist to his art-objects. Thus all things have to fall within his ordering.

To sum up, the good of the order of things to an end is created by God. But God is intelligent and thus has a plan for what he does. Therefore all nature is intelligently directed. As we have said, Aquinas often makes this kind of theological statement.

Aristotle had maintained that there are two kinds of causes of natural events: necessity and the final cause. We have suggested that he did not see that the inner telic working of nature is as necessary as his "necessary" cause. It is necessary with the strictest kind of Aristotelian necessity which is the *necessity of nature*. St. Thomas holds that final causes are necessary causes. Things, he says, have "an inherent natural necessity," which arises from their nature and because they are "determinate in just one way" and cannot act at random. But after amending Aristotle, he goes on to say that this inner natural necessity is "the impress of God directing them to an end, just as the necessity by which the arrow is shot so that it goes straight to a mark is the impress of the archer and not of the arrow."<sup>6</sup> To carry the comparison through with consistency, Aquinas will have to say, although Plato perhaps would not have to say it, that what the arrow gets from the archer is direction simply, whereas what things get from God is being, that is, nature inclusive of direction. And that is what he does say. In a created thing, two factors may be considered: "The bare species of it simply, and also its directedness (*ordo*) to an end; and both of

<sup>6</sup> Ia, q. 103, a. 1 ad 3.

these are beforehand in God. In its species simply, the pattern-form of the thing is idea; but the form of the thing as ordinated to an end is Providence.”<sup>7</sup>

St. Thomas had said, long before the Christians Leibniz and Descartes were to say it, that the order of nature is in nature *ab initio*. Hence if we are ever to conclude that we know that mind directs nature, we shall say this only because inner natural necessity demands such a conclusion. Things are given with that kind of necessity; therefore any direction they have, blind or illumined direction, is to be found within natural necessity. Although things conceivably might not be, they in fact are, and their being includes the aforesaid necessary character. Perhaps they need not be, but once they are, they have to be as they are. Any direction then, blind or guided, is to be found within that necessity.

St. Thomas uses the presupposed idea of a God-director of nature in all the passages cited in the preceding pages. Even granting a God-cause of nature, on what ground does anyone affirm such a director? Why is it said that God is “the cause of things by his intellect”?

One beginning made to justify such a position is this:<sup>8</sup> As Aristotle has shown in the *Physics*, both nature and art (*intellectus*) tend toward ends. But Aristotle is bypassed when it is said: Because nature as well as art does this, “nature as agent has to have the end and the needed means fixed for it beforehand by a higher intelligence, just as the end and determinate motus are fixed beforehand for the arrow by the archer. For this reason there has to be an agent with intellect and will before there is agency in nature, and as God is the first of all agents, he must act with intellect and will.”

This statement depends on two assumptions: 1) there is a first agent which for convenience may be called God; and 2) the determinateness of nature as agency is known, by the analogy of the determinateness given the arrow’s motus by the archer’s aim, to require an intelligent cause.

Determinateness of being, of action and of effect is strictly required, as M. Mansion says, “to equilibrate the data.” That is,

<sup>7</sup> *De Veritate*, q. 5, a. 1 ad 1.

<sup>8</sup> Ia, q. 19, a. 4.

there must be an end and final cause; and the end effected by the agent is the same as the effect "received" by the matter in which the agent works. But the agents in question are both causes and effects, they work and are worked upon, and for that reason are called "imperfect agents." Nevertheless, there is an absolute agent, one that does not try to acquire anything by acting. This agent is absolute and perfect, whereas "any creature has a tendency to achieve its perfection."<sup>9</sup>

In order to account fully for the given world, a world of being and of deficiency in being, Aquinas holds there must be an absolute. The given world is and is not; it is not absolute; it is full of a tending, a struggling toward fulness of being and a struggling even to maintain its being. The fact of the tension—the tending and struggling—supposes an absolute, and the character of the tending—up to now described by the stark word "determinate"—supposes an intelligent absolute. If something is necessarily and eternally *has to be*,<sup>10</sup> that something is not our world of perpetual coming to be; if, as St. Thomas thinks can be shown to be the case, something has to be purely actual and not at all potential, then that something is not our actual-potential world. It is a transcendent something (*aliquid*, Aquinas often says) whose essence and existence are neither conjoined by itself or by another, but are identical.<sup>11</sup> This is the Absolute, the *primum agens*, the *actus purus*.

St. Thomas' use, further on in the *Summa Theologiae*, of the idea of an eternal pattern for things, has made us revert to

<sup>9</sup> Ia, q. 44, a. 4.

<sup>10</sup> Locke and Hume, in diverging on this problem, show the strength of our supposition. Locke says (*Essay*, IV, 10): "Man knows . . . that bare nothing can no more produce any real being, than it can be equal to two right angles. . . . If, therefore, we know there is some real being, and that nonentity cannot produce any real being, it is an evident demonstration, that from all eternity there has been something." Hume on the contrary says that he can readily conceive of a thing's now not being and of its afterwards being, without the intervention of a cause. Our reply is that if man can think so for one being, he can think so for all being; that is, he can think that once there was nothing whereas now there is a world. But in fact man cannot think there was once nothing; he has to suppose with Locke and also with Spinoza that something always was; and he cannot suppose with Hume that the principle of causality is invalid.

<sup>11</sup> Ia, q. 3, aa. 1, 3 and 4.

his position established much earlier. The backward movement in texts was like this: There is an eternal pattern expressed in the natures of things, and this pattern demands intelligence; the pattern is itself a plan or *ratio*. This plan is especially seen in the determinate movement of things toward good, and such reference or "order," as well as the being of things, is caused. But we have no reason to suppose that this determinate motus of things to good, a motus demanding an intelligent cause, has a cause separate from the cause of the being of things. This cause is the Absolute, it is Actuality, it is that "something eternal which has to be." Its essence and existence are really identical. It is uncaused, whereas a being whose existence is really other than its essence must receive its existence from some cause.<sup>12</sup>

The following answer, then, is given to the question: Even granting a God-cause, why an intelligent God-cause? If the totality of nature—all things, and the natures of things—is caused by God, then all the good of things, in their being and their "order" to an end and their tendency to fulness of being, is from God. When so much is said, the original question is justly reiterated: From a blind God-cause, or an intelligent God-cause? St. Thomas' affirmation of an intelligent cause, as far as we have stated it, stands in part on the ground of the determinateness with which things tend to being and fulness of being, and in part on the ground of the unelaborated analogy of the archer's straight shot to the mark. He says that his affirmation "God is" must be the preamble to any act of faith; that the knowledge of God's existence is natural knowledge; that, beginning with the mere name "God" and never coming to know fully what God is, the human mind can nevertheless know *that* God really is. The bare facts that God exists and is a person are known to us, although not all that is involved in those facts of existence is known.

The passages we have cited concerning God as person make use in part of that notion of God as person and are not offered by Aquinas as ex professo proofs of the notion. Aquinas does

<sup>12</sup> Among the passages used in this retrogressive movement are these: Ia IIae, q. 91, a. 1, q. 95, a. 3, q. 103, a. 1 ad 3; Ia, q. 22, a. 1, q. 19, a. 4, q. 3, aa. 1, 3 and 4.

much the same thing in his commentary on Aristotle's famous case for final causes. He says with Aristotle that it is "unsatisfactory" to suppose that nature is not the scene of final causes merely because we do not see the nature-agent deliberate. A person perfectly possessing an art does not deliberate; the scribe or the organist does not deliberate, precisely because his art is a perfected art. "Hence it is clear that not-to-deliberate comes to an agent, not because he does not act for an end, but because he has determinate means through which he acts. Nature, too, because it has determinate means, does not deliberate. In fact, it is only in this way that nature differs from art: nature is an intrinsic principle, and art is an extrinsic principle. For if the art of building were intrinsic to wood, the ship would be built by nature as it is now by art. This fact comes out most clearly in the art which is in that which is moved, even though in an accidental way, as in the doctor who heals himself; for nature has the greatest likeness to this art."<sup>13</sup> The thought is mainly and perhaps wholly Aristotle's: The better art or mind works, the more it has made its rules a kind of nature and therefore proceeds without conscious recurrence to them; yet of course it works for an end; so, too, does nature though we do not see nature deliberate. The best combination of nature and art is in the case of a man healing himself; it is art that heals and nature that is healed, and yet it is the one man who heals and is healed. "Nature," as Aristotle says, "is like that." The conclusion would seem to be: Nature then has a mind by which she has learned to direct herself to ends. But Aristotle does not so conclude; certainly not in this passage. Nor does Aquinas; he only says that nature is directed by an intelligence. "Whence it is evident that nature is nothing other than the expression (*ratio*) of some art, namely the divine art, ingrained in things, by which the things tend<sup>14</sup> to a determinate end: just as if the architect of a ship could confer power (*tribuere*) on the timbers so that they would tend of their very selves to work out the form of the ship."

This Thomistic statement may be regarded as a rather free

<sup>13</sup> *In Physica*, II, c. 8, lect. 14.

<sup>14</sup> *Moventur*—which we saw may be translated as "tend," "have a tendency to," and "are in motion to."

reading of Aristotle. Yet it is conceivably correct for even that purpose, and in any case it is more defensible than Ross's reading of Aristotle on the same point. For Ross says that in this passage Aristotle has "definitely opposed" the working of nature to the working of mind.<sup>15</sup>

Agents have final causes if by their natures they tend to ends, and if they have "natures" they necessarily and evidently do this. Hence to say that there are final causes in all cases of action, is simply to say that there is action and that the agent is what it is.

But when one has said only this, he may appear to be still in the area of unmeant mechanism, since final cause as such seems to be the inevitable end-result of any action. Things do what they do, says Aquinas, by "a natural necessity." It is in this sense that teleology has been called "inverted mechanism." For, as Dr. Pace said, if "end" means no more than determinate effect, then at its best it designates the necessary result of an efficient cause and at its worst it points to an anthropomorphic reading of events which in themselves are void of purpose.<sup>16</sup> Moreover, final causes are said by Aquinas to be rigorously necessary causes. Telicity belongs to action as such. It is *ex natura sua* that any agent tends to an end like itself. What else could it do?

What is the value then of the conclusion that every event must have a final cause? In his reply, Kant, anxious to arrive at a positive answer to the second question—that of a mind directing nature—is impatient that the first should even be asked. He says<sup>17</sup> that "a natural finality" meaning only "a perfection according to which all things have inherent in them all the requisites for being the things they are and not something else" is childish word-play. But the questions, Kant's

<sup>15</sup> W. D. Ross *Aristotle* (second edition, London: Methuen, 1930), 185. Ross repeatedly has this difficulty; cf. his *Aristotle's Metaphysics* (Oxford: The Clarendon Press, 1924), I, pp. cl-clii, and especially his *Aristotle's Physics* (Oxford: The Clarendon Press, 1936), 41-43.

<sup>16</sup> Edward A. Pace, "The Teleology of St. Thomas," *The New Scholasticism*, I (1927), p. 217.

<sup>17</sup> Kant, *Critique of Teleological Judgment*, translated by Meredith (Oxford: Clarendon Press, 1928), 46.

impatience notwithstanding, are distinct. As Descoqs remarks: "It is one thing to prove that action is necessarily for an end in this sense of causal determination, and quite another to prove that mind is necessarily present. In fact, it is doubted and denied by all adversaries of final causes that this mere finality is evidence of mind and will; for it might be achieved as a mere resultant."<sup>18</sup>

If the conclusion is taken as relevant only to hypothetical events, we agree with Descoqs that as regards "meaning" and "purpose" it has no fruitful significance. The case, however, is that of a world of a given character and not of a hypothetical character. What imposes this character on it are the agents, events and effects present in the world, and though we can think of these in a void they are to be taken in their real and not in a suppositional role.

What is given and what we readily become aware of is a world of ordered things, and in that sense a world of order.

Hans Driesch's assertion was that we are immediately aware of order: "the only completely indubitable one among all facts: . . . *I know something (ordered).*"<sup>19</sup> That may be an extreme position, but it is less extreme than Kant's question whether order is there at all, whether "the order of nature" may not be imposed on things by mind and not observed in things by mind.<sup>20</sup> Kant's hesitation requires us to define "order." Order is a relation of "before and after" among distinct things in line with a determinate principle: for example, traffic order implies several things in the ordered relation of "before and after" and in line with a law; and order in cooking or in our national life implies the same types of elements: several things, some of them getting the "call" and priority, whether or not in a spatial and temporal sense, and getting that call in view of and in line with a basic formal principle. This principle is the ground on which the particular order rests: it is the *ratio* and foundation.

But we may expect objections. Does not this Thomistic des-

<sup>18</sup> Pedro Descoqs, *Praelectiones Theologiae Naturalis*, I (Paris: Beauchene, 1932).

<sup>19</sup> Hans Driesch, *Mind and Body*, translated by Besterman (New York: The Dial Press, 1927), 144.

<sup>20</sup> Kant, *op. cit.*, Introduction.

ignation of "order" beg the question as far as nature is concerned? Do not "specification" and "arrangement," to use Augustine's word, beg the question by presupposing mind? The working of nature is plainly given, but the working of mind achieving order is not plainly given.

And then, if in order to escape the directness of these questions, we say that there are evidently means and ends in nature and that the means truly are means only in relation to the ends or ordered totalities, we encounter not only the fact of final-cause necessitation but Kant's question about "means" and "ends." Are these really present in nature or only in minds looking at nature? Kant alleges<sup>21</sup> that to speak of means and ends is to suppose a mind which uses the so-called means as steps to other things called ends, and to do this is to beg the whole question.

Of course we know order in our own lives. We put things together as means and ends and intelligently use some things to get to other things. Everybody admits this, and it is perfectly just to speak of an order and even a principle of human order. On the other hand, Kant's caveat about reading order into nature has to be respected. At the same time, what has to be more respected is the given: many things, often of many kinds, coming together and as a matter of fact forming a unified and even a beneficent result. This is the case which, if possible, must be accounted for; it is of secondary importance for us to put down the many things as means and the result as ends; in other words, to say that the total is an instance of order.

The position of Aquinas is that the results given in nature can be understood only as the work of intelligence. If this position is also finally seen to be a just conclusion, it will be seen simultaneously that things in nature really are means and ends, and that order in that sense is found there and not put there.

Grant final cause in the sense of that toward which agents of their nature tend. Grant also that the final cause, that toward which nature tends, is identifiable in at least the whole living world. The question then remains whether any credible evidence is available to prove the existence of a mind-director and in that sense to prove the existence of "purpose" and a "meant" final cause in nature. Things tend by way of their actions to

<sup>21</sup> Kant, *ibid.*, Introduction, and 18, 21, 40.

their own completions; that is all they can do, because that is the way they are. That is their "nature." But such nature-action-end is not the whole datum. What is given is many things of many kinds achieving harmonious unities. The problem is to account reasonably for this whole datum. At every turn, one finds not merely the inevitable working mentioned, but a working of many things, of different and often diverse kinds, toward unified results; and the working can be shown to be ordinarily beneficent; because the working is toward being. This then appears to be a new determination: a multiplicity of things and events in nature working out in a dynamic way the unified beneficent effects of nature, such as we observe in a living body. Is such unification to be taken as self-existing and thus—since it is caused—as self-caused? Or is it to be seen both as caused and as caused by an intelligence?

We reply that there is indubitable evidence for the working of mind in nature. We deny that the cosmos itself is animated and intelligent or that trees and stones are intelligent, a view which seems never to be wholly outmoded. Thus we hold that mind in nature is, in the strictest sense, transcendent; although, of course, in some sense immanent.

One could wax eloquent about the immensity and intricacy of the given unifications in nature and on that ground conclude "mind is the director of nature." There is no need to do this. Everyone is aware of delicate unifications in the given, of the "laws" of biology and physics, of the reports that in those fields many things of many kinds work effectively together toward unified results. Do they work thus, or do they not? Our answer shows whether we have any acquaintance with nature.

No point, pro or con, is served by invoking the word "chance" and saying that since the given unifications cannot be the result of chance they must be the result of intelligence. For who knows the nature or existence of this alleged thing "chance"? It is sheer unreality, an anthropomorphic entity which ceases to be as soon as we cease to think about it.<sup>22</sup> Certainly it is not a cause. What "chance" is there that a particular event

<sup>22</sup> Cf. Ralph S. Lillie, *General Biology and Philosophy of Organism* (Chicago Univ. Press, 1945), 97: The designation "chance" or "casual" "is anthropomorphic; it refers simply to the lack of connection with human intention, not to any real lack of regular causation."

should be other than it is? To reply one might go with De Coster<sup>23</sup> to mathematicians to learn what "chance" there is that heads will turn up at the next toss: the "chance" is fifty-fifty. There is no chance about it; heads will either come up or not come up. By the word "chance" men merely mean that they do not know which will come up; all they know is one will come up, and that if they throw an unloaded coin for a week, heads will come up about as often as tails. The definite working of nature through complex objects and events to unified results is independent of our ignorance of its prospective working. Hence the question is always the same—whether nature does or does not give evidence of the presence of intelligence. "Chance" as applied to nature means nothing.

We add two notes. First, there may be in the mere and evident agent-action-end an actual "order" or the factual unification and simplification of complexities, but if so it is difficult for the human mind to grasp. Second, in our argument for intelligence we can but need not grant some "disorder" in nature: it is difficult (Heisenburg's principle notwithstanding) to show the existence of disorder in nature; a) because, as Aristotle says,<sup>24</sup> the action of nature is either constant or there is a pattern ( $\lambda\circ\gamma\circ\sigma$ ) in the "irregularity," and b) because "disorder and waste," affirmed, for example by Haeckel, always suppose an order and economy of events directed to ends relative to which the disorder and waste can be intelligibly proclaimed. For the purposes of this study, by order in nature we mean many things of many kinds working effectively together (mind or no-mind now waived) toward and to unified beneficent results; and it is not Aristotle's mere constancy of action but a constancy of this kind that is given in nature.

<sup>23</sup> *Le problème de la finalité* (Louvain, 1887).

<sup>24</sup> *Physics*, 252<sup>a</sup>.



## Order, Purpose and God (continued)

IN the sense named just now, order is the basis of one of St. Thomas' arguments for the existence of God. On the ground of order, nature is declared to be the work of a mind. St. Thomas twice states the argument in a formal way, twice in a distinct but informal way, and we have seen that he often touches it in a kind of inadvertent way. This last way, which does not pretend to justify pointblank all its assumptions, is given in words like the following. Anything in our world may be studied under the aspect of two realities at once, namely, the very nature of the thing and its "orderly relation (*ordo*) to an end"; the form belonging to each of these, to the nature of the thing and to its order or direction, comes from God; the form of the thing as "directed to an end" is called Providence.<sup>1</sup>

Kant was unacquainted with St. Thomas, much less with the cited passage. But it was against this kind of thought, that things are a priori known to be directed to an end, that Kant protests so successfully in his *Critique of the Teleological Judgment*. He says that if we begin by saying that things are

<sup>1</sup> *De Veritate*, q. 5, a. 1.

"ordered to an end" or that things in nature are "means and ends," we are assuming the working of mind in nature; just as if (we may say) one were to begin by saying that mind is at work in nature, one would not need to show that things are ordered to ends. If they are so directed, there is mind; and if mind is operative in them, they are so directed.

Therefore, the question has to be stated anew; and it comes to either of the following: Do we know that things are ordered to ends? or do we know there is mind operative in nature?

Now neither this mind nor this order to an end could be directly known. As both Aquinas and Kant saw, the question thus really becomes: How are we to understand the things of nature—as in some way directed by mind, or as in every way stripped of direction by mind? There does not seem to be any third possibility. Could the things of nature be understood to do the things they do and could they do the things they do, if undirected? In our chapter on Kant we shall see in some detail Kant's reply to this question imposed by reality. Briefly his reply is this: Not even a blade of grass over which no "design" has presided can ever be understood. The position of Aquinas is the following: Kant is correct; a blade of grass over which design had not presided could never be understood, and the reason is that a blade of grass over which design had not presided could never *be*. The difference is fundamental, and is the usual fundamental difference between Kant and Aquinas. The latter holds that the mind can know things. Kant holds that the mind cannot know things but only its understanding of them. In the present case, Kant's view is that we know we could not understand organic things unless there was design. The view of Aquinas is that we know organic or inorganic things could not be unless there was design.

The deliberate statements of Aquinas follow now in detail. His first informal, yet tidy and deliberate, statement is in the *De Veritate* (q. 5, a. 2) and is made in three points, in this order: a) action without any finality is conceivable—a view which we believe is expressed only here, and is inconsistent with his usual metaphysical finalism; b) the given functioning of nature demands final cause; and c) a mind-directed final cause. How does he arrive at this view?

Some very ancient thinkers, he says, posited only the material cause, and since they did not posit agents they could not posit ends, because ends are causes only insofar as they move the agent, that is, the agents of their natures tend toward ends; some more recent thinkers posited agents but said nothing about final cause.

Within his general theory of finality, Aquinas should say that to allow agents is to allow finality, but here he merely says that each of the early accounts was incomplete. Why so? He says that matter and agent "as such are the cause of the being of the effect, but do not suffice for the goodness in the effect."

The key to the position he is going to take is the idea of goodness, and since this is technical it is better to give the original: ". . . Secundum quam (bonitatem) sit conveniens et in ipso, ut permanere possit; et in aliis, ut opituletur." That is, the thing X has goodness if it is such within itself that it is able to continue to be and also if in relation to other things it is such as to be able to enrich them.

Inspected a little, this argument is seen to have for its premise an interacting universe tending toward being and good; the interacting of the observed organic and inorganic worlds and many minor bits of interacting within each of these worlds. That this is Aquinas' view is indicated by the principle just stated by him and also by the one meagre example he gives—that of heat. In Thomistic theory, the first universal law of goal-seeking is a law of self-seeking; it is the law of self-preservation and for living things it includes a law of self-growth; and the second law, without which the first is likely to be ineffective if not self-defeating, is the law of the diffusion of goodness. On the human level, the second law would read: Man cannot find his life unless he gives his life. Translating the quoted principle into human terms, we would say that man is good in the sense that he *can be* and, as man, *wholly be*, and also in the sense that he can enrich the life of others; and he cannot fully be unless he does this. Aquinas takes the first law as applicable to all agents: the ultimate end of any agent insofar as he is an agent is the agent himself.<sup>2</sup> And here in the passage used from the *De Veritate* he applies the second law to

\* *Contra Gentiles*, 3, c. 17.

all things: anything is good in a second and instrumental sense in that it is fit to enrich others. The example given is from heat which is said to have it in itself of its own nature to diffuse itself (*habet dissolvere*), and yet the diffusion is not useful and good except in view of some particular terminus and measure.<sup>3</sup> Hence if we did not grant any causes except the heat (the material cause) and the agents, we would miss the cause of things being done fitly and well; and this is the way they are done. But if a thing has not a cause, it merely "chances" to be; and according to the aforesaid positions, it follows that all the fitnesses and useful qualities of things should be matters of chance. That is what Empedocles said, namely that it is by mere chance that the parts of the animal can be and survive, and this repeatedly happens (*salvari possit, et quod multoties accidit*). But this cannot be, because fitnesses and useful qualities of the sort mentioned are present in nature either all the time or as a general rule; that is why they cannot be by chance and must proceed from a tendency to an end. But what kind of tendency—one directed by a mind or one not so directed? The reply is that a thing without an intellect cannot use complicated means and tend on a bee-line toward an end unless the end is set for it by some intellect. So it must be that "there preexists an intellect which directs (*ordinet*) things in nature towards ends." The arrow hits the mark, and this hitting is the result not merely of the arrow but of the archer. "So too, every work of nature is said by philosophers to be the work of an intelligent cause."

Aquinas is contrasting "philosophers" to "theologians," but taken literally he is generous to his own position when he says that the philosophers hold it, assuming that they do indeed hold it and either that Empedocles and the like also hold it or that they are not among the philosophers. His declaration allows us to repeat the contrast of his thought and Kant's. How do you, he asks Kant, explain the elaborate direct going, of the many elements and events that make a blade of grass, to the unified beneficent results of survival and growth? Kant says: It can never be *explained* except as directed by mind. St. Thomas says: It cannot be except as directed by mind.

<sup>3</sup> Good is always relevant to circumstances. Cf. Ia, q. 19, a. 6 ad 1.

The argument given from Aquinas is within the body of an argument to the effect that the world is ruled by Providence. But it would be incorrect to say that this argument is only a prototype of the fifth of the formal arguments for God's existence as given in the two Summas, both of which are later works; or to say that in St. Thomas' opinion it is not a proof for the existence of an extra-cosmic intelligent cause.<sup>4</sup> Whether this cause is thought to be an absolute is not in any way considered in the passage. Again, it would be incorrect to say that Aquinas does not here merge the problem of final cause and the problem of "meant" or mind-directed final cause: he is saying that final cause and mind-directed final cause are both known from the same large fact—the world order or the given working-together of many things in nature; he says that it is a beneficent cooperation; and obviously it is, in the sense in which he has taken the concept "good." He also says that matter and agent conceivably could, with no final cause whatever, cause the being of an effect. But his present argument for final cause and purpose is based not on mere hypothetical effects, but on the given effects which are complexly and repeatedly achieved in nature, and, as De Coster said, are "heureux et convenables pour le patient."

Neither of the two formal statements of the argument is, in our opinion, more remarkably put than this, although they are perpetually repeated by students whereas the argument just given is seldom mentioned.

The earlier of the formal statements is in the *Contra Gentiles*,<sup>5</sup> and is literally from "the governance" of things. As given in this literal word the argument is weakened; but it need not be so given. We have to translate it in conformity with what St. Thomas says and not in conformity with his headline word. The whole argument can be set down in three propositions.

1. We see that in the world, things of diverse natures come together into unifications (*in unum ordinem*), not as a rare event or from chance but either all the time or as a general rule.
2. But it cannot be that several things of contrary and dissonant

<sup>4</sup> A briefer informal argument to the same effect is found in *Contra Gentiles*, 3, c. 64: "Ea quae . . ."

<sup>5</sup> *Contra Gentiles*, 1, c. 13.

natures come together into unifications (*in unum ordinem*) either always or many times, unless through the ruling of something by which each and all of them are given a tendency to a definite end, as in fact they do. 3. It must therefore be that there is something by whose foresight the world is ruled.

This argument may be summarily put: The given of nature can be explained only as the work of mind, and can be only as the work of mind.

This argument, like the earlier one, is from the factual order, that is, from the multiplicity of different sorts of things working effectively together to a unified result; this resultant order, especially when it is complex and perpetually repeated, demanding a mind which guides things of many different kinds to a definite and harmonious result. The concept of final cause is used rather than mentioned and is merged and in part submerged in the mind which gives meaning and purpose: and to say that there is meaning or purpose is only to say, in Kant's word, that intelligence "presides" over the working of nature. Not a word is explicitly said about the goodness or fitness and useful character of the effect, although it may be assumed that the unified result is fitting and good.

(Order could conceivably be present in nature without its actual dynamic quality and its remarkable tensions, above all in the animal organism. It would then be one flat final thing without movement or repetitions. In that case we could scarcely recognize it; to know order in nature we seem to have to see nature tending through complexities to unified effects.)

In the theological *Summa*,<sup>6</sup> the arguments from the two earlier works are in effect put together. The immediate assumptions of this new statement are these: a) that some things such as earth and plants and stones have not intelligence; b) that they "act for" ends which signifies that they tend of their natures to ends; c) that they attain very great good (*optimum*); and d) that such circumstances could result only from an intelligence directing them, and in that sense meaning or purposing an end. As in the previous statement, the argument is taken literally from "the governance" of things, and is far the best

<sup>6</sup> Ia, q. 2, a. 3.

known of the three deliberate Thomistic statements on the relation between mind and the world-order.

The literal statement is this: We observe that some things which have not knowledge themselves, that is, natural bodies, act for an end; this is evident from the fact that they act either always or as a general rule in the same way, and that they achieve very great good (*optimum*). Thus, it is clearly not from chance but from tendency (*ex intentione*) that they proceed to ends. But things which have not knowledge themselves do not tend to ends except as directed by something which has knowledge and intelligence; take the case of the arrow as directed by the archer. There is, therefore, something intelligent by which all the things of nature are directed toward ends.

We think the key to this statement also can be found in the notion of the achieving of "good" and "very great good" by way of complexities. The mere fact that a thing in acting tends toward an end seems to be no immediate proof for man that it is intelligently directed to an end; since to act at all, it has to do this: a point made by St. Thomas in the *Contra Gentiles* (3, c. 2) although seemingly disallowed in the *De Veritate* for hypothetical cases. Nor is mere constancy and uniformity of action, the Aristotelian ground for affirming final cause in nature, a certain ground for affirming mind-directed final cause in nature. Hence this third statement has its strength, not in the mere fact of essence squaring with essence, but in the existential order of very great good (*optimum*) given in the effects.

To sum up, the composite argument of the three statements is the following. The working of nature is a complicated working. It is by way of many varied elements and actions to unified results (*in unum ordinem*). It is perpetually and repeatedly thus, and is ordinarily a beneficent working (*optimum*). Such working can be understood and can be only as the result of intelligent direction.

Accordingly there is "purpose" expressed in nature, and means and ends are not read into nature but are found in nature. In the Thomistic phrase, things in nature are found "directed to an end."<sup>7</sup>

<sup>7</sup> "... ordinata in finem."

As they have often done, objectors will say that no matter how the argument is doctored up, it remains simply an argument from analogy; and as illustrated by St. Thomas from the archer directing his arrow, it evidently is such. Whether it needs to be such and is only such and whether the archer may be left in his tent, are relevant questions. For the moment, however, let us examine it as an argument from analogy.

Precisely as an argument from analogy, it is tremendous; and whether people think to invalidate an argument by the simple words, "It is from analogy," is a question which may be answered in part by asking how much or how little of human knowing is not based on analogy. It could not be that men know nothing except from analogy, but most of what they know is known on this basis; for example, that an animal desires and suffers, and fights for life, and is in fact seeing and hearing. These are matters not directly known or directly knowable. At the mere word "analogy" people need not run for shelter.

The present basis is extraordinarily broad. It is the sum-total of what men have been able to learn on the genuinely human level—in ordering things in politics, in arts and literature, in mathematics, in medicine and mechanics and all applied sciences, in games, in home and church and school, in the learning process, in theoretic reasoning, in finance, commerce, industry, in the moral and the international life; in a word, in the whole of the rational and properly human life. What we mean to achieve in all our life of knowing and doing and making is order. This—to order, or to try to order—is both precisely and completely our human life; whatever else we might be said to do, is either evil and disorder or is done by animal faith and not on the human level. Man as man is an orderer. Now we know that in all these worlds—arts, sciences, morals, and so forth—it takes intelligence to order many things at once, and we know that in some of these worlds, such as international relations, to achieve and maintain order would take more intelligence, freedom and good will than man now has. But in none of these instances is "ordering" anything more abstruse and recondite than the mind's effectively bringing together many varied elements and events into unified beneficent results.

Hence, on the ground of analogy alone, Aristotle and Aquinas

seem well advised in their dictum: "It takes wisdom to order things." Only intelligence can bring elements and events of many kinds together into harmonious beneficent unifications. Man achieves with intelligence some of the aforesaid beneficent unification and fails in some other knowable and desirable order; both of these within a limited field. On top of this, man is an ordered being before he is ever an orderer, and all the time that he is an orderer he is destined freely to order, and this necessity itself is a part of the order of nature; which means that man belongs to nature and is one among many given "natures." It is the function of intelligence to order things, and what we have at hand ready-made, as Driesch said with such vigor, is a world in fact ordered; not some few ordered things, but innumerable and intricate things, and presumably all things.

Viewed as an argument from analogy, this argument has for its basis the totality of our human life and experience; all the objects of observation and science; and the manifold interactions of those objects.

One may ask in passing how it is that we know the existence of other selves. I know my own existence as a person, a knowledge that is direct and firsthand, because, to paraphrase Driesch, I am immediately aware that I order some things. But how do I know your existence as a person and that of others? Merely because I see analogically that you are an animal, living and sensing and suffering? Rather, only because you and these others give evidence of having intelligence. But how and when do you give this? In ordering things. I see you do this; I have done the same. I know my existence as a person, and on analogy I infer your existence as a person.<sup>8</sup> As Flint said decades ago in his preface to the translation of Janet's *Final Causes*:

The evidences of design are our only evidence for the existence of other human minds. The use of spoken and written language, the production of machinery, the association of efforts, the coordination of actions, etc., are not independent chains of reasoning, but simply links in the one chain of inference from the evidence of design to intelligence, which is the only proof we possess that other men have minds.

<sup>8</sup> Those who say we know the existence of other persons by intuition must find a criterion of true-false intuitions.

Even the old way which used the marks of human handiwork and argued from them to human mind, and then went on to argue that there are in nature marks of a higher handiwork and therefore of a divine mind, may have been simple and mechanical, but was not plainly ridiculous. The objection to the procedure is that Robinson Crusoe came with a loaded mind, because he already knew that men exist and because he knew what sort of tracks and marks man's work leaves, for example watches and other machines; but the philosopher does not already know that God is. The objection seems to us to turn against the objector, for the reason that Crusoe, wise as he was, did not always already know that man is, and much less did he always know what sort of work man does; he had to find out. And how did he do this? By noticing straws in the wind that showed him the existence of other men. Granting that Crusoe did not know beforehand that there is God, neither did he know beforehand that there was a man other than himself. He did not know there was another man before he knew there was another man. As Tennant says,<sup>9</sup> when we ask how Crusoe first got his knowledge of the existence of fellowmen: "We find that it seems to have been mediated in much the same way as is the teleologist's belief in God." In the case of the former knowledge, "there is a psychologically stronger compulsion, a nearer analogy, and a more immediate and constantly reiterated verification-process." But Tennant holds that the origination of the knowledge would appear to be the same in the two cases.

Is the argument for purpose in nature nevertheless ruined by being anthropomorphic? Perhaps we have said enough to reply to this question. In addition, it may be that all human argument and all human things have to be anthropomorphic; and in that case the question is justly turned by asking how little of men's argument, pro or con on this or any question, is not anthropomorphic. The assumptions of such an objection appear to be that, because man has intelligence, he can never know any intelligence except his own, and if he had not intelligence he might somehow know intelligence, but being handicapped by

<sup>9</sup> Frederick Robert Tennant, *Philosophical Theology*, II (Cambridge University Press, 1930), 88-89.

having intelligence he is forever debarred from such knowledge. On these assumptions, man should cease to have intelligence so that he might validly affirm intelligence outside himself. Using the same kind of reasoning he should die so that he could know that other men and animals and plants are alive; and he should cease to be, so that he could validly know being. Most of our knowledge, as we noted, is analogical. Furthermore, it is not merely probable but really the case that all our knowledge has to be ontomorphic, biomorphic, psychomorphic, and both anthropomorphic and egomorphic; these are penalties of our being alive, human and individual. The position, held by everyone that other men are responsible, is analogical, egomorphic, and so forth. As James Ward said: No matter how spiritualistic or how mechanistic anyone's interpretation of the universe, he is anthropomorphic in making it.<sup>10</sup>

The argument for purpose, then, taken precisely as argument from analogy, is formidable. As Hume said, at its worst it is based on experience. It is based on all we know, every last little wisp of our knowledge coming almost certainly to its support. The counter argument, that there is no mind directive of nature, has in its support not any kind or any bit of knowledge. At its best the latter argument has to be based, as Kant said, on what we do not know and never can know. For these reasons it does not seem that men are thoughtless when they accept the argument for a mind-director of nature, and accept it as based on analogy.

But we want to raise the question whether the ground of analogy, however solid this may be, is the only ground on which the argument rests. Both by nature and theoretically man wants an account, an adequate cause, of the data. This adequate cause can only be found and can only be in an intelligence that directs nature. It follows that such intelligence is known to exist.

Three kinds of ground for the argument for knowing purpose in nature are possible, for three have in fact been used: the common one from analogy; the Kantian one from hypothesis; and the fundamental Thomistic one from necessity and ontological causality. Let us state these three in a row.

<sup>10</sup> *Naturalism and Agnosticism*, II (London: Black, 1915); concluding ch. 19, "Nature as Teleological."

1. *The ground of analogy*, which as we have seen is strong enough to hold up an ox, has been given. It is ultra simple and human and comes to this: From our experience of bringing many things of many kinds into pointed and beneficent unifications, we know that it takes an intelligence to achieve even any fraction of such unification and order; hence the world of nature, abounding in these unifications, not of a static but a dynamic sort, is known to be ordered by an intelligence.

2. An intelligence could effect the given unification and order of nature and we do not know anything else that could effect it; hence the supposition, unless or until we get a better one, is that an intelligence does effect it. Or following more definitely the language of Kant, let us suppose an ordering intelligence, a meant finality in nature as an elaborate fiction, the supposition of a single ordering mind giving the greatest possible unity to (our view of) nature. We say, then, that intelligence is the cause of the order of nature because it would be a great obstacle and inconvenience to human knowledge not to say this, and because up to the present we do not know what else to say; and Kant states that it is "absurd" to hope we will ever know what else to say. This is the *ground of hypothesis*.

3. An intelligence could effect the order of the universe, and from the nature of the case—many things of diverse kinds working together and effecting all factual unifications, or order—only an intelligence could effect it. Hence, an intelligence, either by immediate or remote control, does effect it. This we shall call the ground of *ontological causality* which we shall attempt briefly to state as St. Thomas has it.<sup>11</sup>

The multiplicity and diversity of things in nature are obviously great, yet many and diverse things form a definite unity of order, and this unity must have an adequate cause. The things are many and are diverse, for example, in the living body of plant or animal; they are in fact closely unified and form one given beneficent order. Everyone can see that they

<sup>11</sup> Reinhold Niebuhr has said (in a letter to the author) that whenever we argue pro or con on anything, it is necessary to suppose purpose in nature; hence in his view if we argue that there is purpose in nature, or that there is not, we have always to suppose that there is. Niebuhr's ground if valid would be a distinct kind of ground for knowing purpose.

form such unification and that they are originally many and diverse. But "things which are of several distinct natures do not come together into a unified order unless they are brought to unity by one orderer."<sup>12</sup> Many things of many kinds are found in nature—no one will deny it—perpetually proceeding in an orderly way (*ordinate*) to unified and beneficent resultants, and these last must now be called ends. In important instances, we can even name the ends, such as survival and growth. "But it is impossible that things which do not know the end should work toward the end and should go on in an orderly way to the end unless moved by something having knowledge. . . . The whole working of nature, then, must be directed by some intelligence."<sup>13</sup>

The foregoing, we think, is an argument from the nature of the case, from ontological causality; or what we believe may be called argument from essential relationships. Aquinas elsewhere<sup>14</sup> puts the same argument in an informal way which may be recast as question and answer. Why is it that the workings of nature go in an orderly way to ends? There is only one intelligible and real reason for this result; it is because every work of nature is the work of an intelligent cause. There is no hypothesis about this for Aquinas, nor, we would say, any mere analogy. The nature of tending toward ends which are unified beneficent resultants, a tending by many things of many kinds, is such that only an intelligence can effect it. Only intelligence knows the nature of end as end and of means as means,<sup>15</sup> and therefore only intelligence can relate these two as they are everywhere related in nature.<sup>16</sup> But what (someone may ask) can "means" and "ends" stand for here—can they have any verifiable meaning? Do not these notions suppose mind and completely beg the question? The reply is that the events and objects are simply what they are, call them what we will. They are evidently a great multiplicity and heterogeneity which, nevertheless, at each and every point of nature, work

<sup>12</sup> *Contra Gentiles*, 3, c. 64.

<sup>13</sup> *Loc. cit.*

<sup>14</sup> *Contra Gentiles*, 3, c. 24.

<sup>15</sup> Ia IIae, q. 1, a. 2.

<sup>16</sup> *Contra Gentiles*, 2, cc. 23, 24.

together to unified results. There is no supposition about this; it is a question of fact. No realist, at any rate, is ever frightened by a mere word, since his lead is not words but things.

Hence we see the justness in two sayings of Aquinas on the matter (the first an adaptation of Aristotle): a) it takes intelligence to order anything, let alone to order all things; and, b) myriads of things in nature, themselves without intelligence, go in an orderly way to ends as bullets shot from guns.

The three kinds of arguments may be placed side by side. The objects and events are given, and it is a datum that they are nicely and complexly coupled. How is this economy effected? This is the question. The answer is put in two words: *by intelligence*. So say all three statements of the argument. But how do we know that it is by intelligence? The difference appears only in answer to this question. We know it from the analogy of our own effecting like things, says the argument from analogy. We know it because we know that intelligence could effect such economy and we do not know what else in the world could effect it, says the Kantian argument from hypothesis; besides, we need to suppose intelligent finality as a condition of understanding anything. We know it, says the third argument, because only intelligence could so relate event and event and thus effect the given economy: many things of many kinds do not come together into a unified beneficent order but are brought together by an orderer, and it is impossible that this should be done except by an intelligence. In all three procedures, one and the same set of data is to be accounted for, and in all three the conclusion is the same. Only the strength of the conclusion could be in question. We would rate the conclusion invincible even if the argument were from analogy alone, although we are suggesting that analogy is not its only ground.

The validity of the argument from essences and necessity, from "the nature of the case," depends on questions which must be answered either "yes" or "no": namely, whether there are or are not in nature many things of many kinds coupling into the unity of order; whether from the nature of the case such unification and achieving of order does or does not require a cause and an ordering cause; and whether from the nature of

the case only an intelligence can be the cause of the effected economy, the order everywhere given.

Our answer and point of view are like those of Bosanquet in the last sentence of this passage from his article on teleology:

We can freely suppose the world-plan to be immanent in the whole, including finite mind and also mechanical nature, the obviously secondary and fragmentary being of the former constituting a partial revelation of the meaning of things, but by no means its principal vehicle or the sole organ of guidance in evolution or in history. . . . Everything goes to show that "finite consciousness" should not be regarded as the source of teleology, but as itself a manifestation, falling within wider manifestations, of the immanent individuality of the real.<sup>17</sup>

Whatever of Bosanquet's Hegelian concluding words, we say with him that finite mind is not the source of teleology, but one among numerous manifestations of teleology given in nature.

It may be objected that we have argued only from the physical order; but this is not so. What we have said holds for the metaphysical as surely as for the physical order, since in this matter, argument from the metaphysical order is not essentially different from that stated; the metaphysical order differing from the physical only in the units that are ordered. In man, for example, essence and existence are really distinct but not really separate or separable; the same can be said of perfection and imperfection, and of potency and act; and in each instance the pair is found compacted into an ordered unit. Dondene put the metaphysical ground of the argument as well as it needs to be put, when he said: "Every finite being is made of diverse principles of being, which principles are *ordered* intimately to each other, and all *harmonize in the good of the individual.*"<sup>18</sup>

This statement is correct and exact; nevertheless it is exceedingly hard to make use of the metaphysical order as ground of the present argument, because the elements of this order, the two

<sup>17</sup> B. Bosanquet, "The Meaning of Teleology," *Proc. Brit. Acad.*, II (1906), 235 ff.

<sup>18</sup> Albert Dondene, "De Quinta Via S. Thomae," *Collationes Brugenses*, XXX (1930), 257 ff. "Omne finitum diversis principiis entis constat, quae ad invicem intimo ordinata sunt, atque omnia in bonum individui vergunt."

or three or four elements of it, are never really separable, as are certain elements of the chemical order. In the study of either order, we look for the basis of the set of compound relations given in the order. What is given from the outset are many things of many kinds related as means and end; that is, we are given the relation of order among things physical and metaphysical; and we have been seeking the cause of the relation. Order is a particular system of relationships. It involves priority and posteriority; which is to say that it involves some things which may be called "means" related to and subordinated to other things which may be called "ends." Now every relation has a basis,<sup>19</sup> such as similarity or cause or purpose; but here we are looking for the *ratio ordinis*, the form of order in nature. This may be called the natural law of the working of all things, and yet in saying this perhaps we have not gone far: we have substituted "law" for "form." A better approach is by way of the end and final cause, especially since we are dealing with dynamic order; and in any practical matter such as running a nation or cooking a dinner, the end is the chief cause and is a quasi form. Thus, to look for an account of order in nature and to look for the formal principle of that order are in a sense the same thing. If the answer is not found in merely mechanistic efficient cause or in such a final cause as would be indistinguishable from an inverted mechanistic cause, we find by elimination that the cause is a mind-directed tendency to a final cause. The ground of the relation known as order is that final cause, and the form or *ratio ordinis*, of the order given in nature, is that same cause. In a word, the ground of order in nature is purpose.

In an earlier chapter we argued for the validity of final cause as such. That is, we argued for what we may now call mere final cause, a mere agent-action-end. We see that such a cause could exist in theory, but does not exist in fact. It is evident that "final cause" needs a new definition. For heuristic purposes and for cleanliness of method, final cause may at the outset be

<sup>19</sup> Whitehead never made clear the basis of the universal relations affirmed by him. Of course all things are inter-related, but on what ground or grounds? We need not say with Whitehead that things could not not-be-related, but we should like to know the basis on which they are in fact related.

said to be that toward which anything of its nature tends. But in the given world, which is a world of order, one finds that nature tends to nothing except as directed by mind to tend to it. Any final cause is mind-directed final cause.

Although Marling in his work on *The Order of Nature* leans toward our conclusion, it is De Coster alone who invokes the evidence from order and rejects that from mere action, the hypothetical mere agent-action-end. To do as De Coster does, is evidently to deal with imposed data and not with hypothesis. De Coster has also shown that what, for the sake of method, we took as our second question, is itself two questions. A moment ago, we concluded that the question of whether there are final causes is, on closer scrutiny, seen to be the question of whether there are operations directed by mind to ends. Earlier we had to say that nature tends to ends, and in the present chapter we have had to say that all the tending of nature to ends is mind-directed and in that sense is "meant." De Coster then asks whether this mind-directed tending of things to meant ends is "in virtue of an internal principle, which is their nature"? The reply is unanimously, "Yes," because all schools of thought which grant any tendency say that, whatever of mind-direction, the tending is from within. St. Thomas always supposes that the finality of nature is achieved by way of the natures of things; meaning, of course, by an internal principle.<sup>20</sup> Any other finality is that of art, and in this regard art is opposed to nature. No one could doubt this to be the teaching of Aquinas, since he repeats it over and over and is unambiguous on the point. The ultimate end and good of a thing, he holds, is its perfected being. It moves toward this status by way of its proper action, which is different for different types of being; and through each thing's doing its own kind of action and incidentally expressing and revealing its nature, the order of the universe is effected within that complex being, and within the greater complexity of its relationships to all others.<sup>21</sup> From the start a thing has "a natural inclination to its proper activity," and as soon as anything begins to be, it begins to act according to its

<sup>20</sup> As said above, the *natural* inclination in a *natural* thing is in it *naturally*.  
Ia, q. 87, a. 4.

<sup>21</sup> *Contra Gentiles*, 3, cc. 20, 22, 64.

nature or form, just as fire, as soon as it is lighted, moves upward.<sup>22</sup>

De Coster's question takes us to the heart of St. Thomas' teaching on final cause and purpose. Order is the result of each thing's working in line with its nature, fundamentally of its being itself, and thus working inevitably toward the end. A thing in nature is not imposed upon and forced, as the arrow is, to go to or toward a definite mark. But of its nature and from within itself a thing in nature goes surely toward such a mark. This is the fact that Le Roy so clearly saw,<sup>23</sup> and this is the fact to be explained. Things in nature, says St. Thomas, do not go to ends as a stone is thrown into the air or is thrown down faster than it would itself go. It is not by way of an ab-extra "principle of violence" but entirely "in the line of its own inclination that each thing has tendency."<sup>24</sup> Elsewhere he says that in some sense things go on their own (*quodammodo vadunt*). That is the way they are, that is their nature. Their tendency to go in this way is within them and is, at all points, integral to their being. The task is to account for their being as they are and doing as they do, with such and such given natures and tendencies; and one can reasonably conclude that things do not go absolutely on their own, the "certus cursus" of natural things showing clearly that the world is guided by some intelligence.<sup>25</sup>

What kind of principle is this "nature" of which St. Thomas speaks? It is "an intrinsic principle," whereas art, for instance that used in music and in housebuilding, "is an extrinsic principle." One principle works from the inside, the other from the outside. The conclusion is as simple as it is strong: "The nature" of things is integral to them, and is ingrained (*indita*) in them.<sup>26</sup> Aquinas often says that the proper way of man's

<sup>22</sup> Ia IIae, q. 113, a. 7 ad 4.

<sup>23</sup> E. Le Roy, "Comment se pose le problème de Dieu," *Revue de métaphysique et de morale*, XV (1907), pp. 144-48.

<sup>24</sup> IIa IIae, q. 175, a. 1.

<sup>25</sup> Ia, q. 103, a. 1 ad 1.

<sup>26</sup> In his work on *The Order of Nature* (Washington, 1934), Marling often says that the pattern is "stamped into things"; a law "is stamped into the very grain of finite being"; a thing has "an immanent purpose which is

working, his *ratio operandi*, is integral to man; it is "insita," it belongs to the marrow and texture of his being.

This is St. Thomas' statement of internal teleology, which is the only kind affirmed by anyone. The problem is merely set by internal teleology, though it is sometimes thought to solve the problem. For example, William McDougall inquired why an animal seeks a goal, and he replied: "Because it is his nature so to do." St. Thomas gives the same answer, but he thinks that by itself the answer is incomplete and *simpliste*. He first states the objection<sup>27</sup> that things in nature act the way they do because of their nature; their action is strictly fixed, hence they do not need any guide or director to keep them from going off the track. His reply to the objection is that "the precise determination to a fitting effect" is not accounted for by the mere existence of such determination. Again, in the *Summa*<sup>28</sup> he remarks that any composite such as a rock, a horse or Kant's blade of grass, a) is posterior to its components, b) is dependent on them, and, c) has a cause; this last for the reason that things which are in themselves diverse do not harmonize as one unless by way of some cause which unites them. St. Thomas is as strong for the inner character of order, of telism or "morphism" as is McDougall, and as strong for it as is Roy Wood Sellars in the following declaration; although he would say that Sellars' final sentence, instead of solving the problem, simply goes on setting the problem several times over. "The modern naturalist holds that order is intrinsic to nature . . . that the units of nature . . . unite in ways expressive of their nature. . . . Now the evolutionary naturalist of today is laying stress upon the significance of internal, selective control by the trend of the accumulated organization."<sup>29</sup>

The problem of dysteleologies, whether found in the notorious Haeckel or in anyone else, may be mentioned and, for

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part of its very texture." According to Aquinas the laws of nature are "the natural tendencies of things to their proper ends" (*De Div. Nom.*, 10, i).

<sup>27</sup> *De Veritate*, q. 5, a. 2 ad 5.

<sup>28</sup> Ia, q. 3, a. 7.

<sup>29</sup> Roy Wood Sellars, *Religion Coming of Age* (New York: Macmillan, 1928), 218-20.

several reasons, dismissed. Radical dysteleology or disordered non-purpose in nature makes no sense except alongside of some purpose in nature. Man does not know, and it seems he cannot know, whether dysteleologies really exist or could exist; and if they could our problem in this study is not to account for them but to account for the given order of things. It is conceivable, too, that what jumps out of the universal order in one way, "falls back into it" in another;<sup>30</sup> and it may happen that a particular cause can be hindered from action: for example, wet wood will not burn and in relation to man the result is chance or fortuitous; but in relation to the universal cause, even this, Aquinas holds, is provided.<sup>31</sup> Such, it seems to us, is undoubtedly his theory, making it clear that the Aristotelian notion of the occurrence of "mistakes" in nature and of "failures in the purposive effort" have no place in the more radical finalism of St. Thomas.

We still have the question of the unity of the orderer. In the Thomistic view, is there a way to know that just one mind and not a multiplicity of minds guides the world process? This is a question we meet again in Kant, but we note that St. Thomas at least suggests an answer. He says<sup>32</sup> that the order existing in things shows the unity of the world; but he does not develop his suggestion. Elsewhere he argues that there must be just one orderer: many things of many distinct kinds do not form a unified order "unless brought to oneness by one orderer." But in the whole universe of things, beings with distinct and contrary natures form one order. There must then be just one orderer and ruler of the universe.<sup>33</sup> Earlier, St. Thomas had said that between one orderer and the things actually ruled and directed, there could be either many or no intermediate intelligent beings;<sup>34</sup> which, of course, could be orderers.

<sup>30</sup> Ia, q. 19, a. 6, c.

<sup>31</sup> *Ibid.*, q. 22, a. 2, c.

<sup>32</sup> *Ibid.*, q. 47, a. 3.

<sup>33</sup> *Contra Gentiles*, 3, c. 64.

<sup>34</sup> *Ibid.*, c. 23.



# Final Cause in the New Mechanical Philosophy

WHITEHEAD claimed in *Science and the Modern World* that “the sense of order” dominating the thought and life of the West for centuries was a main condition for the origin of modern science. That “sense” made science possible. What he referred to was the Roman insistence on civil order and the Christian insistence on divine plan in the universe. But we know that the Greeks believed greatly in order in both nature and society. They believed in uniformity in nature and in a law of nature. They believed there was a natural way even to speak well or to express things well in any art; any art was supposed to have a natural way, and do best when it imitated nature.<sup>1</sup> Aristotle was Greek in holding that any irregularity in nature’s working was subject to a *logos* or law. The Jews believed at least as firmly in a rule over everything. In post-Roman times, people believed that God made the world to be a world of law and order, and personal and social life are at their best when

<sup>1</sup> All this is attractively stated by Werner Jaeger, *Paideia*, translated by Gilbert Highet (New York: Oxford Univ. Press, 1945), I, xix–xxiv, 49–53.

imitating the orderliness of the cosmos. Order is heaven's first law: church law, Roman law, natural moral law, natural physical law, eternal law—to pay tribute to these is to be prudent in human affairs and wise in regard to the whole of nature. "Law" itself is a blueprint, a plan for doing things, and it has its first and a continuous existence in the mind of the divine lawgiver.<sup>2</sup>

The structure of Grecian, Roman and medieval life and thought rested on the notion of law and natural order and natural finality. It was as if people took seriously beforehand Kant's proclamation that "design" must be presupposed if science and intelligibility, and life for that matter, are to be at all. Whatever else is basic to the *Weltanschauung* of those centuries, we must say that the idea of law and order and an assumed teleology was basic and integral to it. Not to see things and persons as possessed of natural tendency, and for that reason naturally subject to law and expressive of law and thus finalized, is to miss a situation without which neither the thought nor the life of centuries can be understood.

But is there some people's life, somewhere, some time, which does not rest on the supposition of natural determinate natures and natural tendency? Some philosophers, of course, deny natural tendency. But we doubt that any people for any length of time proceed on a contrary supposition. *Ex professo*, Communists proceed simply on an imposed direction, and we shall see that various men have denied final cause and thus natural tendency. But we suspect with Reinhold Niebuhr that denial or doubt of tendency presupposes tendency.<sup>3</sup>

Early modern events such as the change in the locus of authority in religion—together with corresponding changes in thought patterns—and events such as the change embodied in the beginnings of modern science, were like a series of earthquakes. Whatever else the events did or meant to do, some of them meant to shake down the house of final causes.

In events such as the Renaissance and the beginnings of science, Aristotle was entitled to respect, since in any theoretic and practical statement on the person and on society, and on

<sup>2</sup> *Ia IIae*, q. 91, a. 1 (there is an eternal law); *Contra Gentiles*, 3, c. 114 (law is a plan of action).

<sup>3</sup> Niebuhr's word is not "tendency" but "purpose."

nature and the knowledge process, his teaching on final causes is of lasting importance. But Aristotle had been badly represented, with the result that he was as good as stone-dead. Every dynamic thinker of early modern times was against Aristotle, and neither Galileo nor Bacon nor Descartes nor Spinoza suspected that men were fighting against what the historian of philosophy, A. E. Taylor, called a sham Aristotelianism. Philosophy was beginning to come to new life in terms of problems raised by science and especially by mathematics. But an effete Aristotelianism took no account of the problems, and confronted by the Renaissance, the Reformation and science, the old philosophy asked few old or new questions about culture, art, religion, theology or nature. Descartes, Hobbes and Spinoza, not to mention Locke, were tied in a score of ways to the old philosophy, and yet it is no wonder that, in the circumstances, they began to be conscious rebels against it.

Francis Bacon was not much of a philosopher or scientist or historian, but he made a remarkable summary when he said that the failure of the schoolmen came from their "knowing little history, either of nature or time."

That was really score number two against Aristotelianism. His doctrine was taught by the schoolmen who, in neglecting the real, had let themselves go sterile. Score number one was the nearly inevitable fact that along with sterility, or as part of it, had gone a habit of trying to identify the final cause of each particular type of thing in nature. This work of supererogation was ambitious and was justly ridiculed by many men such as Bacon and Molière. Final cause was thought to be non-existent because some persons believed they could name the final cause of each and every thing.

Aristotle was unknown, and what was taken as his philosophy seems to have been picked up, for instance by Bacon and Spinoza and Locke, from the ill-reputed and decadent Aristotelianism of that day. Besides, in a way which is intelligible though not just, Aristotle was associated or identified with Catholicism, and the feeling against Catholicism was considerable. This was an added reason why everything associated with Aristotle's name was condemned. Final cause, an important though little understood principle in Aristotle, had to take the blow, as did sub-

stance and essence and form. Even in Newton's *Principia* (1688), "substantial forms and occult qualities," the latter a loosely used abusive term, were uncritically interred together. It was the custom and law: everybody had to scold Aristotle and hence had to find fault with form and essence and final cause. Men might be good Aristotelians as long as they thought they were not. They might look for forms as Bacon wanted them to do, and affirm natural tendency as Hobbes and Spinoza did, but they must all suppose they were against Aristotle.

We thus see three reasons why an Aristotelian teleology was sure to be rejected. It was tied up with a then unprogressive philosophy and science: therefore, it must be false, and this even if few understood it. Then the advocates of teleology certainly made themselves ridiculous. Lastly, Aristotle's name was bad in itself and in its associations. Add to these charges the fact that the Humanists disliked him on the ground that, though large parts of his teaching on man and social order are basic to humanism, much of his work is technical, is difficult to decipher and understand, and is far from being ordered and completed.

Yet putting all these grounds together, we have not reached the main reason why Aristotle's teleology was to go down, and, for the most part, stay down from 1600 until our day.

The main reason for the ultimate effective neglect is embodied in a negative fact of scientific method and a positive fact of scientific achievement. Science does not need final cause. Physical and mathematical science need not ask whether there are any final causes in nature or art. The question would seem strange in a treatise on physics. Kepler, Galileo, and especially Boyle and Newton, kept affirming divine being and divine purpose, thus mixing their theology and science; and Copernicus said that gravity is probably "a certain natural tendency to draw together," a statement in the Aristotelian teleological tradition. Nevertheless, when the method of physical science is used in isolation, as has now long been the custom, and when the results are triumphant, it is easily understood that teleology would hardly dare draw a breath.

The aim of the most effective intellectual workers began to be different. To know forms and ends is no longer the conscious aim. Little by little the conscious aim becomes a mathe-

matico-mechanical transcription of events occurring in nature. The new way gets results, giving us the luxurious forest of modern science. When the philosophers, whether they were scientists or not, had worn themselves out belaboring Aristotle, it was not evident that they had got far. But the new method of science could manage without seeking the old goals. The procedure might be at bottom unsatisfactory in this regard and it is evidently uncritical, but for many generations its achievements have been sufficient to convince men that it must be asking the right questions and neglecting those that deserve neglect.

Among unscientific by-products of the successful scientific method are the following: (1) a mechanistic metaphysics and physics that have no occasion to invoke final cause; (2) an empirico-positivistic epistemology, running over in its applications into thought on religion, conduct, knowledge, nature and science, and the social sciences—an epistemology which says we know only by empirical verification; (3) a philosophy occasionally recurring that tends to say that reality consists in numbers, that God is a geometer, that either mathematics or physics, or perhaps an astro-mathematical physics, affords the highest knowledge. Each of the philosophies named has, at least by implication, a doctrine of the ultimately real and a doctrine on the nature and limitations of mind.

The following texts, taken from scientists and philosophers, illustrate the tendencies of early modern philosophy relative to final cause. Some of these texts deride final cause; some texts and contexts neglect it; and some texts and contexts show that after all final cause was nevertheless being reaffirmed. The texts used are representative and could scarcely be exhaustive.

The work of Copernicus on the revolutions of the heavenly bodies was published in 1543, and a letter by Copernicus dedicated it to the pope. Copernicus was then old and sick, and the unscrupulous Ossiander wrote a fake preface in which he declared the new view a more satisfactory hypothesis to account for phenomena, and suggested that the new view be allowed and tried. "Then," he said, "not only would the planetary phenomena follow as a consequence, but the order of succession and the dimensions of the planets, and of all spheres, and the heaven itself, would be so bound together, that in no part could

anything be transposed without the disordering of the other parts and of the entire Universe.”<sup>4</sup>

The statement by Ossiander seems modest enough, in its doctrine as well as in its manner; and, although dishonest, he was careful to affirm natural tendency, creation and Providence—all any teleologist could ask. But the new philosophy was more shocking to philosophy of religion and value than to philosophy of nature. The earth had been taken as the center of the universe, the planet around which all others turn. Thus, everything was thought to be in tow to it. That made the earth the “most important” planet, giving man, its leading citizen, an immense natural dignity. Such was the eternal and natural plan: earth the controller of planetary motion, the other planets subjected to and for the sake of the earth, and the earth for the sake of man. In this way the dice seemed loaded in man’s favor. What was claimed even by Ossiander for the Copernican view was that it was truer to the data of physics and astronomy. But Copernican astronomy does raise some secondary problems of teleology. How can man be so important if his planet is so little and subsidiary among planets? The purpose of earth appears to come down a notch, and so does the end and purpose of man; down to our own day, questions of the big cosmos and tiny man are raised, and we are likely to mistake bigness for importance or value.

This devaluation of earth and man were accidental results. They might be implied in the Copernican hypothesis, but Copernicus did not teach or intend them. In regard to teleology itself, the same observation holds for the results of science from that day forward. Kepler carried on an ideal that leans more and more toward a mathematical-mechanical view of nature, a nature that has, nevertheless, been made that way by God. The data can be rendered in terms of quantity and numbers, and this means that a complete disclosure of nature in terms of mathematical harmonies is possible; and nothing is more man-

<sup>4</sup> See Józef Rudnicki, *Nicholas Copernicus*, translated by B. W. A. Massey (London, 1943), 9–11. Cf. 7: Copernicus “produced, about 1509, his *Nicolai Copernici de hypothesibus motuum coelestium a se constitutis commentariolus*. . . . In this treatise he laid down the principles of the heliocentric theory.”

ageable. To see and state the given mathematical "harmonies" was Kepler's apostolate; for the "fuller knowledge of God through nature and the glorification" of the scientist's profession. Though Kepler's affirmation of divine purpose was strong, his creative work tended, by silence and without his ever guessing it, to deprecate and abandon final cause as a principle of explanation. An external teleology remains. God directs the world which becomes a kind of God-driven machine. But once this much is granted, we can interpret all events of nature in terms of mechanical, non-telic causation. In such a view, what is reality, the world, and nature itself? In his study of the metaphysics implicit in early modern science, E. A. Burtt replies: "The real world is a world of quantitative characteristics only; its differences are differences of number alone."<sup>5</sup> We begin to get what we should expect: not only interpretative categories but realities themselves begin to be delimited by current dominant interests and by successful results.

Science is interested primarily in a measurable world. But science makes great progress, and alone in our time has made sure progress. Hence the ease with which we tend to assume that only such knowing is genuine knowing, that only such a world is knowable and that only such a world exists. For better or worse, physics gets along without thought of internal final cause, and the conclusion begins to dawn on the seventeenth century that this cause is superfluous—"useless" is the eventual category—and at best a mental fiction. Still, God made the world in a mechanical form and saw that it should be responsive to the sciences of physics and mathematics. Such we believe is Kepler's position.

Relative to our special problem, Galileo carries along and perfects the same points of view. His concern is with the measurable transformations of matter and energy and his ideal is the mathematical expression of these. What we know in this

<sup>5</sup>E. A. Burtt, *The Metaphysical Foundations of Modern Physical Science* (New York: Harcourt, Brace, 1927), ch. 2. In the revised edition (1932) the words quoted are not found in exactly that form; but it is said in the Doubleday Anchor edition, 1955 (p. 55 and p. 64) that Copernicus was convinced that "the whole universe was made of numbers" and that Kepler was convinced that "genuine causes must always be in the nature of underlying mathematical harmonies."

way is what God knows. "As to the truth," says Galileo, "of which mathematical demonstrations give us the knowledge, it is the same which the Divine Wisdom knoweth." God knows at once what we eventually work out in mathematics. "Nature, being inexorable and immutable, and never passing the bounds of the laws assigned her," time as well as space can be expressed in straight lines. The concepts of end, value and meaning are not so expressible; they are thus not effective tools in the physical laboratory, and, as Burtt says,<sup>6</sup> the world is viewed more and more as a perfect machine. Not that God is denied, since in fact God is affirmed here as in Kepler; but affirmed by an act of faith or as given in an inherited philosophy, and not as known through the impressive new way of knowing. Though man directs himself and things toward ends, in the scientific procedure and ideal he is relevant only as an agent; in his personal capacity, he is non-metrical. God also is irrelevant except that God is designated as the creator of the knowable world. The stage thus seems set for deism, and then, since science succeeds without asking teleological or theological questions, it seems set for mechanistic materialism. The fact that neither followed at once, or at all generally, is witness to the toughness of man's affirmation of spirit and Providence.

One looks in vain through historians and philosophers of modern science for confirmation of the popular view that Francis Bacon had a great role in the making of modern science or scientific method. Perhaps only in the case of Boyle did Bacon have notable influence. Bacon is, nevertheless, of interest as the herald of the new day. In his report to the King on learning (1605) and also in his *Novum Organum* (1623), he shows himself aware of the sterility found in the philosophy of the time, and aware of what it takes to advance by the use of scientific data and hypothesis.

In the earlier work, called the *Advancement of Learning*, Bacon's teaching on final cause is of historical importance. The main points are these:

i. To know nature we must experiment. Most basic for philosophy of nature is "History Mechanical . . . it will give more true and real illumination concerning causes and axioms."

<sup>6</sup>Burtt, *op. cit.*, concluding ch. 3; Anchor edition, 104.

2. Physics is to investigate and handle the material and efficient causes, and metaphysics the final and formal causes.

3. "Metaphysics, and the seeking of forms, produces magic: for the seeking of final causes is sterile, and, like a virgin consecrated to God, produces nothing." Physics is productive. "Physics in fact, and the seeking of efficient and material causes, produces mechanics."

4. "The invention of forms is of all other parts of knowledge the worthiest to be sought, if it be possible to be found. As for the possibility, they are ill discoverers that think there is no land, when they can see nothing but sea." The second part of metaphysics is the seeking of final causes, which "I am moved to report not as omitted, but as misplaced." This misplacing has caused "a deficiency, or at least a great improficiency in the sciences themselves." The mixing of final causes with physical inquiry "hath intercepted the severe and diligent inquiry of all real and physical causes, and given men occasion to stay upon these satisfactory and specious causes, to the great arrest and prejudice of further discovery." Aristotle, Galen and others, as well as Plato, "do usually likewise fall upon these flats of discoursing causes," mixing the two kinds of inquiry. "For to say that the hairs of the eyelids are for a quickset and fence about the sight . . . and the like, is well inquired and collected in metaphysics; but in physics they are impertinent. Nay, they are but remoras and hinderances to stay and slug the ship from further sailing," and have caused the search of physical causes to be neglected. The nature-philosophy of Democritus and others "(who did not suppose a mind or reason in the frame of things, but attributed the form thereof able to maintain itself, to infinite essays or proofs of nature . . .) seemeth to me . . . in particularities of physical causes, more real and better inquired than that of Aristotle and Plato; whereof both intermingled final causes . . . not because those final causes are not true, and worthy to be inquired," in their place. Let each kind of cause keep to its precincts; then "men are extremely deceived if they think there is an enmity or repugnancy at all between them . . . both causes being true and compatible, the one declaring an intention, the other a consequence only."

"Neither doth this call in question, or derogate from divine providence, but greatly confirm and exalt it."

In the *Novum Organum*, Bacon stated the following points relevant to final cause. Natures and forms are to be investigated, but to date we have no sound and clear notion of substance and quality, much less of weight and density. Aristotle sophistically asserted that there is "a peculiar and proper motion in all bodies," and that any other motion they have comes from external causes.

Descartes is even better than Bacon as a summary and revelation of seventeenth century thought on final cause. He is interested in motion and not in ends and purposes, and his succinct thought may be put briefly: a) God is efficient cause of the world, its creator and maintainer. b) But even if the form he first gave to it was chaos, provided he gave it laws and his own concurrence, we may believe that the natural, physical world would be as we now see it. c) Not only the common animal but the human body may be regarded as a machine made by God and much more adequately arranged than any machine made by man. d) We must not try to discover the ends which God proposed in the creation of natural things, but taking God as efficient cause let us try to find by natural light what we are to conclude about them. e) It is known nevertheless that God foreordains all, although Descartes feels that this doctrine, which states that each act and event is determinate, raises difficulties, since the determinate nature of our will is to be indeterminate. f) In the one act by which God made the world he also conserves it and gave, and thus perpetually gives, to bodies the motion they have; bodies then pass motion on from one to another.<sup>7</sup>

Such, in brief, was common doctrine at that time. God has purposes, but it is not for us to identify these. Inner tendency toward ends, that is to say the Aristotelian telic factor, is sometimes expressly denied, but is usually denied only by implication: when it is said that events in the *res extensa* occur merely by impact; and when the mathematically measurable is called, not the tendency toward an end, but simply the impact. The

<sup>7</sup> Descartes, *Discourse on Method*, Part V; *Meditations*, IV; and *Principles*, Part I, cc. 28, 40, and 41; Part II, c. 42; Part III, cc. 2 and 3.

animal is an automaton, and so is man's body, and the natural cosmos begins to be likened to a machine. God is allowed as the geometer-machinist, and more as the mover and starter than as the designer, since men of the seventeenth century were more interested in the problem of motion than in problems of order, direction, purpose and value.

The science of that century was largely mathematical and physical (though of course it was biological in Harvey, for example, and human and social in men like Grotius), and its influence on theories of final cause was indirect. It naturally neglected questions of finality, and men went on making acts of faith about God's ordering the world. Relative to Aristotelian telism, they now fell into a dual habit: of misunderstanding it and deriding it.

It may be, however, that to think in terms of immanent tendency toward ends is a law of human thought, and Aristotle claimed that such tendency is a law of individual being. The affirmation or assumption of ends in nature reappears so regularly and surely, even on the part of the most circumspect, that man seems foredoomed to it, and this recurrence suggests that finality is a law of being. We waive the question whether Galileo, Bacon, and Descartes could be shown to be finalists. It is certain that Spinoza, overtly denying final cause, is found in many places affirming it, and Hobbes, no lover of anything in Aristotle, turns out in spite of himself to be a vigorous Aristotelian teleologist. Let us see their explicit and implicit doctrine.

Every man, says Hobbes, "naturally endeavors" to have himself valued. Is this endeavor by inner, natural tendency, and is it toward an end? It is both. Hobbes means just that, or nothing; so that, he goes on, "in the nature of man" we find three chief causes of trouble: competition, diffidence, and glory. The result is that, in Hobbes' predicated state of nature, man had a natural inclination to war. Whatever the justness of the theory, it is a declaration for natural tendency, an inner, non-impact principle of movement toward an end. But to say there is such tendency is to affirm final cause. Aristotle's teaching is this: As things are, so they act, and, if nothing hinders, such-like things are the result; these last are final causes. But, says

Hobbes, here is the way men naturally are: without a common power, without government or the State; the life of man solitary, nasty, brutish and short; their condition is a war of every man against every man. What condition? The natural one, of course. Hobbes means that, or nothing. Thus, Hobbes differs from Aristotle in identifying, but not in affirming, tendency and natural direction.

In Spinoza the question is only slightly more complicated. Spinoza declares against final cause, and yet everywhere affirms it. In the *Tractatus Theologico-Politicus*<sup>8</sup> he says that all things occur and are determinate (*fiunt et determinantur*) by the universal laws of nature, a redundant statement that is doctrinally Aristotelian. That fixed and unchangeable order of nature, he says, is what I mean by God's direction; the fixed laws are the eternal decrees of God. This, of course, once we leave out Spinoza's penchant for seeing God and nature as one, is a statement fit for a Christian teleological philosopher. Spinoza goes on to put the whole into one sentence: "To say that all things occur according to the laws of nature and to say they are ordered by God's decree and direction is to say the same thing."

This undoubtedly leaves Spinoza a final-cause man. Spinoza often repeats his sentence of death on final cause, and yet he remains strong for final cause: finalism in Spinoza—or no Spinoza. Things tend toward ends, and he says that God "ordains" them to be that way. Without teleological doctrine, Spinoza would be as surely silenced as would be an Aristotle without teleology. Consider the following, taken from the *Ethics* (Part I, prop. 14). It is of the nature of reason to know things as they are. This is to say that something or other is such by nature; it is the nature of reason, its natural tendency to go in the specified direction; this direction is God's direction, decree and law. Again (III, 6, 7 ff.), each thing possesses or is possessed by a "conatus," which we can only suppose is a tendency, a thrust, a drive, a pre-potent set. Spinoza specifies both the extent and the object of this drive: insofar as it is and insofar as it can, each thing strives to persevere in its own being.

<sup>8</sup> *Opera*, Van Vloten and Land edition (Hagae Comitum, M. Nijhoff, 1913-1914), III, p. 123.

Is this a natural tendency, or is it imposed by us on things, or merely attributed by us to things? According to Spinoza, it is natural. His doctrine on this point is not only Aristotelian, but his formulation of it—herited from the Middle Ages—is better than Aristotle's. It reads as follows: "From the given essence of anything certain things necessarily follow; nor are things able to do anything else than what necessarily follows from their determinate nature." The doctrine of preservation is also in Descartes' *Principles* (II, 37) and is basic to Hobbes' *Leviathan*; but it has seldom been better put than by Spinoza.

Some readily intelligible matters left Spinoza thinking he was antiteleological. First, his doctrine on motion in bodies is borrowed from Descartes and Hobbes, and it might have been taken from Democritus; it is simply the impact theory.<sup>9</sup> Next, like others of his era he wanted to reject Aristotle, and like them he was little versed in Aristotle. Hence on some points he merely thought he rejected Aristotle. The great protagonist of Spinoza, Sir Frederick Pollock, said: "It is certain that Spinoza's acquaintance with Greek philosophy was superficial," and Spinoza himself said: "The authority of Plato, Aristotle, and Socrates does not count for much with me." It is readily intelligible how so hearty an Aristotelian teleologist kept saying that he opposed final cause. However, Spinoza's doctrine of man's nature and end has not the slightest meaning outside its teleological context.

The main part of the work done by Boyle and Newton follows in time that of the philosophers already mentioned and that of Kepler and Galileo. Burtt's summary<sup>10</sup> of the metaphysical development under the influence of science up to about 1665, is this: Through Copernicus, Kepler, Galileo, Descartes, Hobbes, and some others less well known, the philosophical emphasis and interest had shifted from a realm of substances in qualitative and teleological relations to "a realm of bodies moving mechanically in space and time." Boyle and Newton were by no means to reverse the emphasis.

Boyle was an explorer in physics, but not in philosophy or

<sup>9</sup> *Ethics*, II, prop. 30, and III, prop. 3.

<sup>10</sup> *Metaphysical Foundations of Modern Physical Science* (New York: Anchor edition, 1955), 161.

theology. In these fields, he repeated old formulas which he certainly believed. Like others, he used the term "the mechanical philosophy," and the term was a happy choice. Things were seen as machines, possessed of no inner principle, nature or tendency; at least, none that tells us relevantly of their being. They were driven from the outside, a) by God who is thus a sort of mechanic, and b) by impact. As a physicist, Boyle was measuring impact; and as a believer he was asserting that God made the world to be of the sort affirmed. Said Boyle: "Nature does play the mechanician," and mathematical and mechanical principles were the "alphabet in which God wrote the world." Supposing God made the world and continues to direct it, phenomena "may be solved mechanically," that is, by the "mechanical affections" of bodies, such as motion, weight, gravity and shape. Forms and presumably ends may be omitted.<sup>11</sup>

In Newton, the method was made more express and more exact. From his day, men were no longer seeking to know what X is, or why it is, or whether it is a substance or a cause, or has a drive toward an end, or even whether X is real rather than phenomenal. Such questions were irrelevant to the task of getting an exact mathematical transcription of processes. That was Newton's work; he was a physicist, and not a philosopher or theologian. Burtt suggests that Newton was tempted by his success and by the good and truth he achieved to take the world of his interests and his success as *the* world and his method as the *exclusive* method. But his convictions about God and God's order in the world and the divine ends and divine art of nature, he repeated with fidelity and obvious sincerity. Although neither a theologian nor a philosopher, he was a scientist and a man of God. It is because God made the world as he did that things turn out so admirably and that nothing is done in vain.<sup>12</sup> In brief, Newton gives us a physical world without inner final cause, and a religious world with God as designer and final cause. The practical non-teleology of physics is affirmed, and so is the practical teleology of faith and religion. The elementary and simple Aristotelian teleology, rigidly formulated in medieval thought and in Spinoza, is not sensed.

<sup>11</sup> *Ibid.*, 172-73.

<sup>12</sup> *Ibid.*, 294-97.

As far as teleology is concerned, this sketchy survey of a century yields such points as these. In physics and mathematics, it was assumed that final cause is irrelevant and that at least the second of these disciplines is *Zwecklos*. In religion, by way of faith and not by way of theology or philosophy, a divine purpose and final cause was asserted. For historically intelligible reasons, Aristotle was vilified, and his teleology, though not understood, was anathematized. Nevertheless, so profound a philosopher as Spinoza and so good a psychologist as Hobbes were sure to revert to the Aristotelian position.

## *On Which Side Is Hume?*

HUME was a sort of self-sufficient country gentleman, an educated man, somewhat aloof from if not callous toward the great human and human-divine problems. Precisely because of his apparent indifference, we may think we see in him the ideal attitude of the discoverer in science and philosophy. Yet the really great philosophers have always been concerned with the problems of their times. More than concern, of course, is needed, but without it the philosophic mind is left short-changed. Whatever of that issue, we shall let Hume state his pros and cons relative to divine purpose in nature.

Among the English, the problems of final cause tend to be telescoped into the problem of divine design. Scientists such as Kepler, Galileo, Boyle and Newton, their work close to mechanics, tend that way almost all the time. Spinoza affirms such design, and (as we saw) he and Hobbes unconsciously reaffirm Aristotelian telism. For the Cambridge Platonists, human persons are the children of the Lord, and "God is not usually wanting to his children, in their extremities." In Descartes, reason or the natural light was a sort of mechanical lamp. But

for these Platonists, reason was "the candle of the Lord, lighted by God and lighting us to God." Berkeley was a Christian philosopher, in the sense that faith was a guide to reason. He said that the order of the created world shows that there is one infinite spirit. He kept up a fight against Hobbes and said that the mechanical is so far from being the only cause that it is not really a cause at all. It is spirit and chiefly infinite spirit that is cause. The "mechanical philosopher" investigated rules and modes of operation, but cause (Berkeley held) was not within his purview. Berkeley said that we are to affirm "an universal Mind, enlightening and ordering all things," and all things are made for the supreme good, and "tend to that end."<sup>1</sup>

The movement of philosophy coming up to Hume's day was toward the empirical, even though it followed a crooked line. Descartes, Hobbes and Spinoza may be classed together as deducing from principles. But the scientists, not as philosophers but as touching on philosophy, suggested another approach, and Locke, though far from keeping his word, promised to use "the plain historical" method. He meant the empirical or fact by fact method; and his words suggest in which way the wind was blowing. Hume was not a scientist nor directly under the influence of science, and yet his philosophy is a sort of introspective empiricism. On questions of nature seeking ends, he was silent, seemingly unaware of them. However, he dealt deliberately and at length with the problem of design versus no design. What he achieved was, in brief, a dual caveat, an exhortation to each of his main disputants to be modest and to be aware of the difficulties in their positions. And if his statement is less precise and less profound than that of Kant, it should be repeated for the completeness of the record. His statement on divine purpose in nature—one would hesitate to call it his doctrine—has its merits. At least it covers the ground more completely than does any other.

One opinion is that Hume disbelieved in God and a fortiori in "design." This view is difficult to prove. It is more likely

<sup>1</sup> Berkeley, *Principles of Human Knowledge*, n. 26; *Siris*, nn. 249, 234, 341, 260. Cf. George Alexander Johnston, *The Development of Berkeley's Philosophy* (London: Macmillan, 1923), 194, 248–53; and John Wild, *George Berkeley* (Harvard University Press, 1936), 69, 403–24.

that he believed in God; or if that is putting it too strongly, it is safe to say that we do not know that he disbelieved in God, the belief that he may have had amounting to a kind of lifeless neutrality. His *Dialogues on Natural Religion* are here under review, and in these Hume wavered from side to side and certainly did not leave much to be said for design. On the whole, however, and when things are balanced, he probably thought (and he certainly said) that design has a leg under it. So much the *Dialogues* themselves show. He went back and forth on the subject by way of dialogue, and when he made his resounding conclusion, which is enough to shake down a mountain, an unwary reader might be dumfounded for a moment and wonder where in the world Hume stood. But we believe he stood and meant to stand just beyond center, with a noticeable list to the right.

Hume's position has to be broken into its parts which depend on more than the literal statement in the *Dialogues*. As Professor Hendel has shown,<sup>2</sup> Hume expressed in this one study nearly the whole of his philosophy, especially its negative aspect; and any positive word he was able to say on the problem of "design" came through better here than elsewhere.

Summarily Hume's qualified positive statement was this: All ordinary thinking, as well as human living, supposes design or some mind directive of nature, and if this view cannot be didactically imposed, at least it cannot be disproved. But much may be said against it. What we know of human nature and human understanding, or rather what we do not know, brings the positive case into doubt and perhaps into disrepute. One may live on the presumption of purpose and design in nature, let speculative "cavils" be what they may. The other side of the picture is that in Hume's opinion the cavils cannot be exorcised.

This study of Hume's is not important in the sense of original positive or negative doctrine, for we believe it has not a major point that had not been made by others. But it is a satisfaction to hear a great man exhaust himself on the subject. Besides, it is a summary of Hume's mature and considered thought on a

<sup>2</sup> Charles W. Hendel, *Studies in the Philosophy of David Hume* (Princeton University Press, 1925).

problem that concerned him all his life; and if Professor Hendel is conceivably wrong in saying that Hume's main philosophical problem was to explain the world-order, it has to be said that Hume makes attractive reading on this problem.

All his life he had been considering the yes and no of the case. Even before he had written his famous *Treatise*—this appeared in January 1739, when Hume was only twenty-eight—he had given thought to the problem of God and the world-order. "It was the issue that was to haunt Hume for thirty years."

When he was at work on the *Dialogues* he wrote to a friend that the God-design problem was an old topic with him. He said that before he was twenty he had put into a notebook "the gradual progress of my thoughts on that head. It began with an anxious search after arguments, to confirm the common opinion; doubts stole in, dissipated, returned; were again dissipated, returned again; and it was a perpetual struggle." We suggest that, though Hume was somewhat cavalier and sophisticated in thought and life, he sought but did not achieve peace on this subject. The most he did was declare a truce when after many years he had let a spokesman for one side square off against a spokesman for the other side and had let each have his complete say.

Hume liked the method of dialogue, man against man, and spent intermittent periods for nearly ten years on the present matter, doing and re-doing it. Then in 1761 he put the work aside and never touched it again. But he took every precaution to see that the work would be published after his death.

The chief characters are Cleanthes and Philo. The former is said to be of an "accurate philosophical turn," and is thought to be none other than the formidable Bishop Berkeley for whom Hume had great respect but whose philosophical position, thought by Hume to be over-pious, he could not accept. Philo is "the careless sceptic." Hendel says that Philo is a composite picture of all the negationists of Western history on the problem of design; he is Epicurus and Strabo, the negative part of Cicero and the punctilious part of Francis Bacon. Philo is the negative part of Hume, the Hume of no facile orthodoxy. Both Philo and Cleanthes are anxious and restless, and each of them is a propaganda man. In their persons, Hume is like a bee

buzzing round a flower and not able to make up its mind whether the flower contains nectar. He has them say whatever he can conceive against meaning, and in the interims some good things for meaning. We shall hear the latter at once.

The first and biggest positive point is that Hume, allowing "order" and bringing no epistemological criticism to bear on it, grants that order implies the existence of some sort of limited God possessed of mind. He does not lightly endorse such a God; he has no great faith first or last in this God; and the God is not an absolute. But if we had only the *Dialogues* we should have to say that Hume grants some sort of limited God as author of the order given in nature. The adjustment and arrangement of things in nature, he is always saying, are "curious." There is order, a "curious adapting of means to ends, throughout all nature," exactly like human contrivance, and since the effects are alike, so are the causes. Thus the cause of nature is "somewhat similar" to the mind of man.

Later the argument is more direct. We read: "The order and arrangement of parts, the curious adjustment of final causes, the plain use and intention of every part and organ" bespeak an intelligent cause. Hume has Philo affirm "the inexplicable contrivance and artifice of Nature. A purpose, an intention, a design strikes everywhere the most careless, the most stupid thinker," and no one can be so hardened in abstract systems as always to reject it. Philo, usually negative, goes on (part XII) to say: To what pitch of pertinacious obstinacy must a philosopher in this age have attained if he can doubt of a supreme intelligence! Supposing there were a God who was not immediately discoverable to our sense, "were it possible for him to give stronger proofs of his existence, than what appear on the whole face of Nature?" What could such a divine being do but copy the present economy of things?

Cleanthes breaks in: If anyone weakens this theory, he cannot offer any other that would be so "precise and determinate." It is enough for him if he can start doubts and difficulties and achieve suspension of judgment, which is not only an unsatisfactory state of mind, but cannot be maintained steadily against such striking appearances.

What is perhaps the strongest statement on this side is the

quasi-negative one of Philo (X) that the “beauty and fitness of final causes” are so striking that all objections appear to be “(what I believe they really are) mere cavils and sophisms.”

Another statement (III) like these, but longer and more deliberately analogical, is made by Cleanthes. Suppose, he says, a voice came out of the clouds (like the angel that Darwin would later await), over all nations at once, to every nation in its own language, the words having sense and meaning. Could we hesitate with regard to its cause? When we hear a voice in the dark we infer a man: given likeness in effects we infer likeness in causes. But as for this voice out of the clouds, it would be strange to suppose that “a rational, wise, coherent speech proceeded, you know not whence, from some accidental whistling of the winds,” and not from reason and intelligence. Or suppose that books were natural products and were propagated like animals and vegetables; and in fact (he says) the propagation of an *Iliad* or *Aeneid* is an easier supposition than the propagation of a plant or animal. Suppose you enter your library and find it peopled with natural volumes of refined reason and exquisite beauty. Shall we say that they have “no meaning”? No, of course not. Well, the anatomy of an animal affords stronger instances of design than does the perusal of Virgil or Tacitus; and objections which hold against the former must more surely hold against “our vegetating library.” Or consider the eye. The most obvious conclusion is “in favor of design”; and it takes time, reflection and study to summon up frivolous, though abstruse, objections. Or consider male and female; anyone must think “the propagation of the species is intended by Nature.” There are millions and millions of such instances, and “no language can convey a more intelligible, irresistible meaning, than the curious adjustment of final causes.” The conclusion deserves the special paragraph which the text gives to it:

“Whatever cavils may be urged; an orderly world, as well as a coherent, articulate speech, will still be received as an incontestable proof of design and intention.”

Although not wishing to debate the point, we think it sufficiently clear that even when the strong other view, plus the conclusion, is heard, Hume declares in this work for the exist-

ence of an intelligence that orders the world. But within the same work and on the ground of order, he always declares for a finite intelligent God. Order and arrangement, says Cleanthes, curious adjustment, plain use and intention of part and organ "bespeak" an intelligent cause. But, he says, there I stop my inquiry; let others go farther who are wiser and bolder or more enterprising. This is the center of the positive Humean doctrine on purpose: there is vast intricate order, it is the expression of purpose, and this requires an intelligent cause, but it does not require an absolute cause, that is, a perfect God; and, when evil is looked in the face, the order of the world hardly, if at all, allows a perfect God. It is said by Philo (XI), as the best that can be said in tolerance of evil, that the "bad appearances" may be compatible with the attributes supposed of an Absolute, but surely can never be taken to prove those attributes. This statement grants a great deal, somewhat more than many of Hume's followers would grant. At the outset Hume suggested that the question concerns the nature and not the being of a God, and his conclusion proceeds to affirm a finite God. Toward the end the author says that in the present case judgment cannot remain suspended in the air, and that "here then the existence of a DEITY is plainly ascertained by reason," and if we stick at calling the Deity a mind or intelligence, it is a matter of words. No man can deny the analogies between the effects; we can scarcely keep from asking about the causes. Furthermore, he says that it is legitimate to conclude to any analogy between the causes. He thinks the quarrel is only a matter of degree. "The Theist allows, that the original intelligence is very different from human reason: The Atheist allows, that the original principle of order bears some remote analogy to it."

Hume lets Philo ask (VIII) a funny question, seeming to think it an argument against intelligence as the cause of nature. Philo says that it is useless as an argument for intelligence to insist on the uses of the parts in living things and their adjustment, and he states the reason for the inutility in a question. "I would fain know how an animal could subsist, unless its parts were so adjusted?" This is to say: An animal could not subsist unless nicely adjusted; it is so adjusted and does subsist;

therefore it is known that the adjustment does not need intelligence as a cause. It is seldom that Hume misses to such a degree the import of what he says. What we consider a still weaker point with him, because it is pervasive, is that deep within himself he does not believe that blind matter does or can account for order and adjustment and adaptation; we shall see that he protests too much, and quite out of turn, on this subject.

Now for the negative arguments, which are given in greater abundance and detail and appear to be just as serious. These fall under the headings of analogy, of the incapacity of the human mind for big things, of evil, of the alleged limited nature of God, and of matter as the source of order.

Hume probably takes his most firm stand on the ground that argument from analogy is not valid, unless, as he says, the cases are "exactly similar." When two kinds of objects are always found conjoined, I may by custom infer the existence of one when I observe the other. This is "an argument from experience." But in the instance of our tiny human world and the whole vast world such procedure will not do, because the objects are single, individual and without parallel, and surely no man will say that he has experience of the entire universe (II).<sup>3</sup> Man orders some things by art and contrivance, and then he says that the order and arrangement of all things demand something similar as cause. "Admirable conclusion!" says Philo. "Stone, wood, brick, iron, brass, have not, at this time, in this minute globe of earth, an order or arrangement without human art and contrivance; therefore the universe could not originally attain its order and arrangement, without something similar to human art." Unless the cases be "exactly similar," he will not admit that the argument is valid. He wants to know whether a conclusion can be justly applied from part to whole, and he says that he will not allow any one part to form a rule for a "very remote" other part. Perhaps he breaks this rule when he says (VII) that a tree bestows order and organization on the tree which springs from it; and in the same way an animal on an animal, a bird on a bird. He asserts it to be a begging of the

<sup>3</sup>This difficulty was often raised elsewhere by Hume; cf. Hendel, *op. cit.*, 67-70, 208, 299-301.

question to say that all this order comes, in the long run, from mind. The universe is not a house, and accordingly we may not say that the causes of each is mind; the dissimilitude is so striking that we can only conjecture as to the cause of the former. Look, he says, at how big the world is as shown to us by astronomers! Bigness is an argument against mind, because human art produces nothing of nearly the same size. The cause of the universe is "so unlimited" that it is unjust to form an idea of it from our experience of our narrow and limited productions. Philo says that the world is more like an animal or a vegetable than like a watch or a knitting-loom; its cause, therefore, more probably resembles the cause of the two former, which cause is said to be generation or vegetation (VII). Later (X), when he has cited evils, he asks Cleanthes whether it is possible that, after all these reflections and many other possible ones, he can hold to his anthropomorphism.

The argument against analogy is strong, but not as elementary as scepticism of the mind's power to know and hence scepticism of any argument for or against anything. With the very first word, Philo asks us to be wary, to take note of the weakness, blindness and constrained limits of reason. See how little we know about the coherence of the parts in a stone or even its composition; what assurance, then, have we in deciding about the origin of worlds? Human mind is at work in a narrow corner and even there it is limited. By what right, then, does our mind say that mind is the first cause of all things? We have no data for any system of cosmogony, and the proper stance of human understanding in this ignorance and obscurity is to be sceptical, or at least cautious, "and not to admit of any hypothesis, whatever." We are bound to silence. "A total suspense of judgment is here our only reasonable resource."

Evil as ground for disbelief in purpose is exploited by Hume. There is nothing radically new in his statement, but it is made with vigor and charm. He has a third person, Demea of "rigid orthodoxy," name some major evils: disease, a prison full of bad men, a battlefield strewn with carcasses, a fleet gone on the rocks, people stricken by plague, famine or tyranny; and the gay side of life, such as the opera and the court, only shows us a diversity of distress. In the face of such evils, says Philo,

will anyone cling to his anthropomorphism and say that the Deity is just, merciful and righteous? We grant that God's power is infinite, but neither man nor beast is happy, and therefore God does not will their happiness. Yet, he says, granting that the happiness of life exceeds its misery, a point that could never be proved, still we expect something more than this minimum from infinite wisdom and power and goodness. The question is, "Why is there any evil at all in the world?" Is it from the will and mind of the Deity? But he is perfectly good. Is it contrary to his will? But he is almighty. So then, Demea says, if we are still to say that God is infinite in wisdom and power and goodness, it is because we see with the eyes of faith alone. It is a strange economy that there are pains as well as pleasures. Why not only the latter? Hume suggests that we have both because the world is orderly and regular. But he thinks that it need not be so. Why might not the world be unintelligibly irregular and thus save animal and man from every physical evil? Why need man be free, since if he were not he would be saved from moral evil? Besides, most evils would be cured by hard work; why is not man endowed with an immense "propensity" to industry and labor? It is allowed that if the goodness of God were antecedently established, then the named phenomena, though untoward, would let the principle stand and might in some unknown way be reconcilable with it. But at present we have to infer the divine goodness from the evil phenomena.

Hence the present lively conclusion. "The whole presents nothing but the idea of a blind Nature, impregnated by a great vivifying principle, and pouring forth from her lap, without discernment or parental care, her maimed and abortive children!"

Philo says he finds himself like the mythical man who, when asked *what* God is, desired to be given a day to think about it, then two days, and so on. Why not say at once we do not know and that the subject is too difficult for us? A cause ought, in any case, to be proportionate to the effect, hence theists should give up all claim to infinity in the Deity. Besides, nature is full of "inexplicable difficulties" and therefore has no perfect author. "Many worlds might have been botched and bungled,

throughout an eternity, ere this system was struck out: much labour lost: many fruitless trials made: and a slow, but continued improvement carried on during infinite ages in the art of world-building." In such subjects, where is the truth, the probability? And what shadow of proof is there, Philo goes on, for the unity of the Deity? Do not many men join in building a house or a city?

Cleanthes replies: In your view, we might say the world arose some time or other from something like design, but not a word more; the world may be "only the first rude essay of some infant deity" who afterwards abandoned it, ashamed of his performance; or of some doting and superannuated deity, and it runs on now "at adventures" from the first impulsion.

These several arguments, added to those from the fact of evil, leave us with a God who is limited and imperfect, not absolute at once in power and in goodness. We know, Cleanthes says (IV), that an "intelligent nature" is essential to the Deity, but we ought not to say that this intelligence is wholly without change, since such a nature would be no mind at all. By way of addition, Philo inquires about the cause of the supposed cause of nature, and he says that the "Supreme Being" needs some cause to order "the different ideas" which compose its reason.

It is hard to tell on which side of the fence Hume means, in the long run, to stand, and whether he possibly thinks that the argument that matter might be an orderer is the deadliest negative gun he has to fire. In the passage just used he says: Why not suppose matter to "contain the principle of its order within itself" and what harm if in this way we "really assert it to be God"? He had stated earlier (II) that order, arrangement, or the adjustment of final causes, is proof of mind only insofar as we have experience of such order as proceeding from mind; and for all we can know a priori, matter "may contain the cause or spring of order originally, within itself, as well as mind does." He thinks it no more difficult to suppose that the several elements "fall into the most exquisite arrangement" from an internal unknown cause, than to conceive that the ideas of them in the great universal mind fall into that arrangement. He admits, nevertheless, that experience "proves that there is an original principle of order in mind, not in matter."

He often comes back to this question. Cannot matter be the source of all order? (He seems to ask by implication: Is not matter the source then of mind, also?) Surely, Philo says, it is as easy to think an animal body to be either originally and of itself or from unknown causes possessed of order and organization as to suppose a like order to belong to mind. He says: I esteem no particular theory of nature more plausible (though I am defending none) than that which teaches order to be entirely from the inside; the principle of order being "eternal, inherent." This notion solves at one stroke all difficulties. For we must sooner or later grant that there is an original, inherent principle of order somewhere, either in mind or in matter, and "it is very indifferent to which of these we give the preference." Everything is governed by steady, inviolable laws, and if we could see "the inmost sense of things" we would not admire their order but understand the impossibility for things "ever to admit of any other disposition."

The point is, says Philo, that it would be necessary—if the argument for purpose is to hold—to show a priori that order is of its nature inseparably tied to and dependent on mind and thought, and that it can never of itself or from some original unknown principle belong to matter. "Why an orderly system may not be spun from the belly as well as from the brain, it will be difficult for him to give a satisfactory reason." Suppose matter to be finite and for that reason capable of only finite transpositions; yet in an eternal duration it would try every possible position or collocation an infinite number of times. It is true that such doctrine may imply that matter acquires motion without a mover. Well, he says, Let it! In any case, the very beginning of movement has not been experienced by us, and is therefore incomprehensible. As far as human experience goes, matter has always been in motion, whatever the causes, and the motion might have been propagated by impact throughout all eternity. The question is whether there is a system, an order or economy by which matter can hold to its essential, perpetual motion, and yet remain constant in its forms. There certainly is; for such is the actual present world. The eternal motion of matter therefore, a) must effect this economy in less than infinite transpositions, and b) once set up, this

economy supports itself for many ages, perhaps for eternity. The reader will see that Philo is not far here from Lucretius, or, as he says, from Epicurus' "most absurd system." Suppose matter is cast into any position, he says, "by a blind, unguided force." Furthermore, suppose the force remains, and the first position, which is the most disorderly possible, gives away to another and another. Is it not possible that it may so settle at last, not losing its active force which we suppose inherent in it, as to keep "an uniformity of appearance"?

Cleanthes comes to his rescue and asks: Why may not the material universe be the Absolute? To emphasize the question he uses a supposition made by Hume in his denial elsewhere of efficient cause. Since the relation of causality (he says) "implies a priority in time and a beginning of existence," it seems absurd to look for a first cause. How could anything that exists from eternity have a cause?

We think the overtone of Hume's protestation, so often repeated,<sup>4</sup> that "blind, unguided force" is the cause of the granted order and end-seeking of our world, suggests he does not believe the argument; but of course this point cannot be strictly proved. In any event, the case for unguided force as cause of order is in no way referred to in the really tremendous conclusion. The two sides have been given, and all the pros and cons stated; arguments have been amassed for mind as cause of the order in nature, and Hume has not neglected the "objections which lie against it." He now turns Philo loose to conclude, seemingly as "the most inquisitive, contemplative, and religious man." Such a man gives "a plain, philosophical assent": the arguments pro defeat all the objections. But the arguments for what? For the view "*that the cause or causes of order in the universe probably bear some remote analogy to human intelligence.*" Then Philo qualifies the statement with a supposition: If his italicized proposition gives no inference affecting human conduct in the way of "action or forbearance" and cannot be applied "with any appearance of probability, to the other qualities of the mind"—good, let it stand!

After all then, says Hume, we must feel a) some astonishment

<sup>4</sup> David Hume, *Dialogues on Natural Religion*, edited by Green and Grose (London: Longmans, Green, 1878), 395, 408, 417, 419, 423, 426.

because of the greatness of the object, b) some melancholy because of its obscurity, and c) some contempt of human reason because it cannot give a more satisfactory solution to so extraordinary and magnificent a problem.

Many points in Hume's celebrated treatise on final cause and purpose might be challenged, such as the assumption that the view that the order of nature implies mind and purpose, could, by arbitrary fiat, avoid inference affecting human life. But our present chapter is expository; we have let Hume spend himself, for he, of all men, has erected here a tower of negation. We may say, however, as a concluding summary, that Hume raises problems of which he seems to be unaware. Let us state some of these unfinished tasks. Granted that the order of the world sets both a theoretical and a practical problem begging for a solution, the question is whether Hume has solved that problem and really accounted for order or has left the problem in the air; whether in arguing lustily against the validity of analogy he does not perpetually lean on analogy; whether any sort of argument other than that from analogy is necessary here or allowable or conceivable; whether argument from order to mind—either in the world at large, or in the human world outside the solipsistic self—does not rest on a proved or an assumed realism, and on a proved or assumed principle of causality; whether a limited mind which should order the world of nature does not leave us with the problem with which we began—these are among the problems arising out of Hume's famous case for and against divine purpose in nature, but not in any way considered by him.

## How Far Kant Goes

HUMAN life seems always to be making the implicit affirmation that not only itself but the whole universe has direction and purpose. Life demands that things "make sense." This is true of at least human life, which is naturally personal and "sense-making." We also have theoretic statements that the world has purpose, and at least repeatedly if not always we have the denial that the world has purpose. But it is only in Kant that we have a serious and classic statement of a midway position. Kant says the world acts just as if it were directed by mind. He says that, if we are really to know and make progress in understanding anything, we have to suppose the world is so directed and is purposeful. It is a law of the mind to think in this way. But there Kant stops. To say that the world is known to be directed by intelligence is something to which Kant will not commit himself.

The core of Kant's statement is in three parts: (1) Nature is perpetually acting as if it were directed by mind to ends. (2) To suppose that nature is so directed is not only the best actual, but forever the best possible, explanation of any organ-

ism. (3) Nonetheless, would it not be presumptuous to say that nature is so directed?

We shall see why Kant goes so far, and why he stops dead, refusing to go any further. But first we make two remarks. The as-if part of Kant's doctrine and also his final halt are often, in effect, repeated by others, though rarely with the force and vigor which he give to them. Many variations also appear. For instance, the second part of Kant's position is usually omitted, giving the impression that man could in fact understand a blade of grass "over which no design had presided." Then too the as-if point is used in two or three ways: nature acts as if it had purpose, but (a) we do not know that it has, or (b) we cannot know that it has, or (c) we know that it has not. At the end of the chapter we shall briefly use Vaihinger's *Philosophy of 'As If'*, which he claims is the genuine full-blown thought of Kant; and shall say something of what is to be thought of Kant's most crucial pronouncements.

To understand Kant, it is necessary to be aware of two main points relevant to his position on final cause and purpose. First, he never grants that the end-seeking of nature really is as we think it to be and as he says we have to think it to be if we are to make any progress in understanding nature. Second, the mind of God, which with qualification he admits being the source of such nature, is not more than the Absolute theoretically admitted in general by Kant. We have the idea of such a mind. Sometimes Kant says that such a mind is an ideal, and often he says it is merely a "regulative principle" of reason.

Kant begins his study of finality in a modest way. He remarks<sup>1</sup> that reason may at the outset be granted a main point, namely, that the case for purpose or design, a case founded, as Kant here states it and as he always assumes it to be, wholly on analogy, is valid. He says the suppositions are two: that the causality of some mind is at work in nature; and that this mind is somehow outside nature. As if by way of warning, he says that this second notion might not stand up against "subtle transcendental criticism. But to neither of these opinions shall we at present object." To comprehend Kant on finality we have

<sup>1</sup> *Critique of Pure Reason*, translated by Meikeljohn (London, 1890). Until otherwise specified, the matter is from this work, 380-430.

to understand that he yields ground here only provisionally and for the sake of argument, and that he seldom takes care to distinguish the problem of the possible tending of nature to ends from the problem of the possible direction of nature by mind.

Our minds direct some things to ends. Nature goes to ends. Therefore nature is directed by some mind. Kant in effect says: Suppose we grant that the analogy holds. What then? Does the argument prove a created world and that the stuff of the world was made from nothing? (This question, at any rate, is one that Plato and Aristotle did not ask.) Kant's reply is negative; creation is not proved. The analogy granted, "this proof can at most" show the existence of "an architect of the world" who works within the limits set by the materials at hand. At most a shaper, not a creator, of the given stuff, is proved. Secondly, does it prove this architect-cause to be an absolute? No, not this either; in any case a cause need only be proportionate to its effects, and since in the present case these are limited, the cause is not known to be absolute. To say that such cause must be "very great" both in power and excellence would be just, but would not give an affirmative answer to the question. Here the author forces the reader to recall the chief stipulations made by Kant for the study of every question relative to God. The stipulations are three: first, any God who may really be must be *omnitudo realitatis*, the "all-sufficient being"; secondly, the empirical world, which is always conditioned, is not such a being and Kant says it does not give us evidence for such a being; lastly, we cannot know anything that is in any way transcendent to the empirical world.

What then do men do in their search for the Absolute? Kant says they leave the path of empirical investigation and make an immense leap into "the region of pure possibility"; by which he means they abandon the argument from finality and proceed by using some other argument such as that from contingency or that from efficiency.

What Kant has so far discovered is not a world-maker but a world-shaper; and this shaper or architect-cause is limited and relative and has not in itself "all possible perfection." Besides, such limited cause is not known to be in any sense genuinely

apart from and other than the given world. Within the named limitations, nevertheless, Kant concludes at this stage to a cause and an intelligent cause. He qualifies the conclusion, as was noted; he says that the argument cannot show such cause to be other than merely immanent in the world or that this cause is an unlimited and perfect being.

Up to this point Kant has only begun; what has been called "the Kantian mould of mind" has yet to assert itself. Kant has yet greatly to qualify his qualified conclusions. He says: "The principle that everything which happens (the *empirically contingent*) must have a cause," is itself a principle for the understanding of nature. Kant, however, does not grant that it is known to be more than that. It is a "regulative" principle—a principle which we assume as a strictly necessary hypothesis for understanding nature, but we do not know and cannot prove this principle of causality to be true. We need it in order to think, but is it a "constitutive" principle, found to express reality and the being of things? Kant does not say it does not express reality; he asks how we could know that it does. Besides, if the empirical law of causality were to lead us to a knowledge of the Absolute, this being would have to belong somehow to the empirical realm and would not be absolute after all; rather, it would be, "like all phenomena, itself conditioned." How then are we to get beyond the empirical and conditioned? We cannot get beyond it by knowledge, though we can do so by faith and hypothesis. If, then, we are to allow reason to assert the existence of an Absolute, "this can be admitted only from favour" and not from demonstration; and it follows that the notion of an Absolute is "a mere ideal, though a *faultless one*." It is a transcendental notion crowning the system of human thought. It is a regulative ideal, but must never be taken to be constitutive. It may not be said to be got by the mind from things, but the mind has—if it is ever to understand things—to impose this idea on things. As a regulative idea it has to remain a heuristic fiction.

Kant often repeats this distinction between regulative and constitutive. In current terms, the regulative idea would be an unverified and unverifiable hypothesis. In Kant's view, it is a

useful and necessary idea if we are to understand at all; yet since it is not proved or provable, we have to conclude that we can never understand.

An absolute mind directive of world-process would be a regulative idea of the kind mentioned. This mind is unproved and unprovable, but the idea of it is necessary; we must assume such a mind. Kant says: "I cogitate" a mind that would be absolute. "I cogitate this being as *self-subsistent reason*, and as the cause of the universe operating by means of ideas of the greatest possible harmony and unity. . . . [I do this] solely for the purpose of rendering systematic unity possible in the world of empirical diversity, and thus securing the widest possible extension for the exercise of reason in that sphere. This I am enabled to do, by regarding all connections and relations in the world of sense, as if they were the dispositions of a supreme reason." In order to know, human reason seeks the highest possible unity. This unity will be one based on ideas alone; it is "the unity of all things—a unity in accordance with an aim and purpose; and the speculative interest of reason renders it necessary to regard all order in the world as if it originated from the intention and design of a supreme reason." In this way the hypothesis of a supreme intelligence, a hypothesis allowing to (our view of) things the greatest unity, is always of the highest service to thought.

Once we grant the argument from analogy to be relevant, we may conclude to an intelligence. We may conclude only to a supreme and absolute intelligence which is not known to be real, one used as a regulative and not a constitutive principle. The main reason for this limitation is that, though to understand nature we have to conceive such an intelligence as really existing, we are never able to know beyond the confines of the empirical, and such an intelligence is not given in the empirical directly; therefore, such an intelligence is not known or knowable. Another reason given for what Kant considers the unknowability of God is that if we did take such supreme intelligence to be real and not merely a regulative principle or convenient fiction, our reason would from the outset regard all its investigations of nature "as absolutely complete," and would become lazy.

In the *Critique of the Teleological Judgment*<sup>2</sup> the celebrated author restates this general position and makes the important additions summarized earlier. These additions are two; first, that "no new Newton" who should deny or neglect a presiding design will ever succeed in explaining any organism; and second, that it would be presumptuous to claim that no other explanation is the answer. In the work already used he says that, since for validity of understanding we may employ only those principles immanent in experience, a "rational" theory of the existence of God can be founded only on the laws of morality; and on this ground he does attempt later to establish it. In his study of the teleological judgment he takes nearly the same position. He says that freedom is a kind of absolute, but nevertheless means nothing unless it can realize ends; hence we should conceive nature (by which he means any not-free realm) in such a way that if it does not include, it does not at any rate exclude the possibility of ends which can be realized in accordance with freedom. Reason provides us with the categories such as causality, and with the help of these we can study nature as a unit and as subject to laws. But if we are effectively to study nature we have to regard it not as several separate systems but as one system, a unity of order; and the whole of nature has to be seen "in the light of such a unity as a mind (not our own) would have established if, in setting up these laws, it had regard for our power of knowing and had wished to make possible a system founded on the particular laws of nature."

Two observations may be made on this last sentence. With its series of "as . . . as . . .," it is a major "as-if"; with the aid of the categories we can study nature as if a unit and as if subject to laws; to make a good study of nature we have to understand it as if one system, and as if unified in the way a foreseeing mind would unify. Secondly, the thought has a noticeable ontological touch: we can suppose that nature is unified by mind, and since nothing would be more to the point than such a supposition, therefore let us make it. Yet, even though Kant is a most serious man, he never says or means that nature is really so unified; the supposition is merely a convenient fiction.

<sup>2</sup>We use both the translation by Berni (Paris, 1845) and that by Meredith (Oxford, 1928).

Seeing things as finalized by mind is, with Kant, not the same as finding nature finalized. This seeing is always subjective; to advance in knowing nature we have to suppose her to be other than we can ever really know her to be. The principle of finality-design is regulative only. For nature "is not ruled on the conditions according to which we seek to form a conception of her." No mind is known to have founded nature and to have had regard for our understanding. Our judgment simply makes this law for itself, and from itself, not from nature. For "we may not attribute to nature any such thing as a relation of nature itself to ends, but only make use of this notion to reflect on nature." It is a question of achieving an "experience perfectly bound together in all its parts"; "the transcendental concept of a finality of nature" remains a subjective principle, a maxim of human judgment, although a maxim strictly necessary.

In a word, let us suppose nature to be strictly one system, a means-end totality, a finalized whole. We have to do this if we are to make "palpable to our understanding the ordinance" of nature. We may not say that finality directed by mind is found in nature, and yet the transcendental principles of knowledge allow us to suppose a finality by which nature in its particular laws agrees nicely with the power of human judgment. The teleological judgment is an admissible one, at least in a problematic sense and on condition that one never pretends finally and surely to explain anything by it. From first to last, this judgment remains regulative only.

"What in a word does the most perfect teleology prove? Does it prove the existence of an intelligent being," the cause of this finality? It proves only that, our powers of knowledge being what they are, "we cannot form any idea of the possibility of the world unless we conceive a supreme cause *acting with purpose*. Objectively we cannot prove this proposition, that there is a supreme intelligence." We would be running in circles if we tried to do so. We should introduce the notion of God to explain finality in nature "and then use this finality to prove that there is a God." Nevertheless, we may use such figurative language as the "wisdom, the economy, the foresight, the beneficence of nature," on two conditions: without making of nature an intelligent being, which Kant says would

be absurd; and without taking the chance of positing outside of nature an intelligent workman. For evidently there is "a big difference between saying that the production of certain things in nature or of the whole of nature itself is possible only by a cause which determines itself to act in view of certain ends, and saying that, *because of the particular nature of my faculties*, I cannot judge of the possibility of things and their production except by conceiving a cause acting for the sake of ends," that is, an intelligent cause. This is as far as Kant is able to go, the difference of which he has just spoken being one between affirming real causal connection and accepting Kant's theory of human limitation.

That is the case for beings in general. With regard to organized beings and "their internal possibility," it is "in fact absolutely certain that we cannot" know them sufficiently and explain them to ourselves "by the purely mechanistic principles of nature . . . it is absurd for men to attempt any such thing, and to hope that some new Newton will some day explain the production of a blade of grass by natural laws over which no design has presided; for this is a view absolutely denied to man." Shall we say then that a mind has designed nature? This would be to go too far; because, although we can never otherwise understand nature, the being of nature and our understanding of her may be at odds, and it would be "great presumption" to suppose that if we could bore into the "principles of nature in the specification of the universal laws which we know, we could not find a principle of the possibility of organized beings which would dispense us from referring their production to design; for how can we know that?"

This five-word question, so concentrated, might seem to leave the matter open. But Kant means to close it, and he puts into this summary almost all that he has said on the subject. The prophecy of no new Newton's solving the problem without allowing design is not meant as a retraction of all that Kant had already stated. That question and the vigorous declaration about the impossibility of our ever conceiving the world minus a supreme cause acting with purpose, express in a lasting form Kant's important contribution for all times to the subject of finality and design.

Kant did not always do justice to the two basic parts of the subject, that is, whether there is a tending toward ends in nature, and whether any such tending is or is not directed by mind. It is evident that his "over which no design has presided," has run the two parts indecipherably together.<sup>3</sup> But he was not the first or the last to confuse those problems.

Of course his epistemology is relevant. One may say that only it is relevant since Kant made of it a kind of *Ding-an-sich*. It dictates his thought that the order of nature, the multiplicity of divergent things effecting beneficent unities, is perhaps not really there. If the multiplicity of nature effecting unities is not really there, we do not wish to consider either a pro or con interpretation of it. In passing, we remark that Kant's holding we can never know we get to things as such, presents its own difficulties. Kant has thereby said that his own knowing, in his present declaration at least, goes straight to the situation as it is and reports it exactly as found.

Kant's argument that it is circular to say the notion of God explains finality, and finality shows that God exists, can hardly be taken seriously. For if given fossils are explicable only by the existence of two-legged elephants, such bipeds are proved to have existed. And if X is seen to be caused, then a cause of X is known to exist; or if X is seen to be explained only by the existence of an intelligent cause called Y, then the intelligent cause Y is seen to exist.

The yet lighter argument used by Kant against the reality of an intelligent cause, namely that if such cause were taken as "constitutive" human reason would grow lazy, tells us something about Kant but nothing about reality in general. The

<sup>3</sup>Cf. Paul Janet, *Final Causes* (Edinburgh: T. and T. Clark, 1883), 323. It is one thing to say that nature has ends, another to say that the cause of this nature is a mind "which has co-ordinated it according to ends." The hypothesis of subjectivity can be applied to either point: either that the ends of nature are only appearances, or that the supposition of an intelligent cause is a symbol, "a mere regulative maxim of the mind. Kant has never clearly explained himself. . . . Sometimes he distinguishes the two questions . . . sometimes, on the other hand, he seems to involve them both . . . what he calls subjective is sometimes finality in general, sometimes intentionality."

argument has little ground in principle; and as for fact, Whitehead speaks of

the greatest contribution of mediaevalism to the formation of the scientific movement. I mean the inexpugnable belief that every detailed occurrence can be correlated with its antecedents in a perfectly definite manner, exemplifying general principles. Without this belief the incredible labours of scientists would be without hope . . . How has this conviction been so vividly implanted on the European mind? . . . there seems but one source for its origin. It must come from the mediaeval insistence on the rationality of God. . . . Every detail was supervised and ordered: the search into nature could only result in the vindication of the faith in rationality.<sup>4</sup>

Kant has insisted that if we do not affirm mind as directive of nature we cannot make intellectual progress, but here he says that if we do affirm mind we grow lazy and presumably cannot make any progress at all. Man is caught coming and going.

His saying that ends do not exist in nature but that the mind "subtly" inserts the notion of ends into nature, comes from his over-all subjectivity. It is always difficult for Kant to accept at face-value the declarations of the senses and the mind. Descartes claimed to follow the lead of his own mind in discovering that God exists, but then, to accept "clear and certain ideas," which were Descartes' criterion of genuine knowledge, Descartes appealed to God as no deceiver. So he went around in a circle. Aristotle took the position that things are "there" and impose on both the senses and the mind, but Kant wants rather to reverse the situation and have the mind dictate to things.

His position that, the world being limited, its order is not at once seen to demand an absolute as cause, is obviously just. As we saw, the order of the world does not directly demand a perfect and absolute intelligence as cause, but only—on the principle allowed by Kant—a sufficient intelligence as cause. Kant says, however, (a) that it is because of this circumstance that men "jump" to cosmological argument; (b) that this latter argument is really ontological; and (c) that the ontological

<sup>4</sup> Alfred North Whitehead, *Science and the Modern World* (New York: Macmillan, 1928), ch. 1.

argument is invalid. We waive the second and third assertions as irrelevant here, and return to the first, concerning which we ask these questions. Do men need to make the alleged leap? Do they in fact make it? Is not an argument from final causality an argument from causality? It seems correct to say that Kant's world of the "always conditioned" cannot be thought to have intelligibility or existence except in relation to a leap to a never conditioned; and if this is so, Kant has discovered reason for what he calls the impossibly big leap beyond the empirical and conditioned. Again, we may ask with Cajetan<sup>5</sup> whether a limited intelligence which should order our world would not depend—both as caused and also on grounds of the ordered relation of essence and existence within itself—on an orderer; and whether sooner or later some orderer is thus declared to be absolute.

Not any of these matters—not his problem of "regulative versus constitutive," or his problem of argument in a circle, or even of a limited absolute—is Kant's lasting challenge to men of all epistemological faiths on the existence and interpretation of the order of the universe. The challenge is in three simple parts: (1) We cannot form any idea of the possibility of the world unless we conceive a supreme cause acting with purpose. (2) We cannot now or ever explain so much as a blade of grass over which no mind has presided. (3) But would it not be presumptuous for us to say that organized beings could not exist without the causal co-presence of mind? For how could we know this?

No ancient Epicurus or Lucretius and no new Newton, Darwin or Einstein has refuted Kant's pronouncement that it is denied to man to explain an organized being over which design has not presided. But it is Kant himself who questions the solidity of the ground on which he says we are forced to stand. For, he says, how could we be sure that, engineered into exactly the right position, we could not find a principle for the possibility of the coming to be of organized beings with no reference to design?

As long as cause is allowed at all—and mind directing things to ends is a cause or it is nothing—this pointed question can

<sup>5</sup> *In Sum. Th.*, I, q. 2, a. 3; q. 3, a. 2.

be answered. What kind of cause other than intelligent cause could the cause of the order of nature be? What kind of cause is there other than intelligent cause? Only unintelligent "mechanistic" cause. And this, as we so often saw, does not suffice for the given effect; not because Kant so vigorously says that it can never be seen to suffice, but because in the nature of the case it does not. The given in this field is many things of many kinds effecting a harmonious and beneficent outcome—such as survival—and this effect, if it is an effect at all, is at least in part the effect of an intelligent cause or wholly the effect of an unintelligent mechanistic cause. There is no midway between these. The outcome is in some way directed by mind or in no way directed by mind. As Janet says, the question "must be well answered," and in Janet's words, the question is the same old one, namely, "how a cause attains an end by appropriate means, without having known the end or chosen the means?" If the words "means and end" seem to beg the issue, one may ask how the ten or twelve chemical elements that form an onion or a banana come together beneficially, and do in fact form these organized beings. One may in fairness ask the same about the inorganic;<sup>6</sup> about organic survival and growth and reproduction; and above all about the complicated dynamic physico-intelligent-volitional entity which man's tendencies show him naturally, and not by his taking thought, to be. We must explain the "way" of each thing and of all things. This is not explained by saying with Kant that although it will always be impossible to explain it without design, still, if we could get more intimately at things, it might after all not be impossible to explain it without design. The unintelligent blind cause will always be as useless as Kant says it will be, as an explanation of the order of the universe.

The cause is not less than intelligent. For all we know, it could be more than intelligent, but man does not know what a more-than-intelligent being would be like. The cause is not

<sup>6</sup> Sir Charles Sherrington rightly says that the "urge-to-live" is "an immense natural situation." Man is possessed by it, but it has roots also in the pre-living world. Cf. Sherrington, *Man on His Nature* (first edition; New York: Macmillan, 1941), 193–94 (Doubleday, Anchor edition, 1955, 166).

less than, though conceivably more than, a person. It is in this sense, it seems to us, that Janet in his *Final Causes* accepts the "as-if" of Kant. The cause, we take Janet to conclude, acts as if it were intelligent, but it may be more than intelligent.

The main teachings of Kant on finality come therefore to two famous points: (1) Allowing analogy to hold, he asks in the earliest *Critique* how much is thereby proved, and answers: a) an architect of nature; and b) a limited architect. (2) In the study of the teleological judgment, he brings his "transcendental criticism" to bear on the suppositions of the argument. He says that finality-by-mind is not known to be at work in nature, but that we allow it to be there, and we have to do so in order to understand anything. "We make use of this conception in order to reflect on nature," and proceed in the study of nature as if finality-by-mind was known to be present. We could never explain any living thing if we did not do this. But Kant asks whether it would not be over-bold to conclude that nature could not be otherwise explained. Thus what Kant grants to finality-by-mind in function of "no new Newton," is only that such finality is a principle regulative of our thought.

Kant goes on to note an aspect of the given that is at least roughly known by everyone: in nature all things are reciprocally means and ends. Whether or not in those words, this is commonly seen to be the way of nature,<sup>7</sup> and much is made of it in terms of "the elements" in ancient thought, of the flower in the crannied wall, of "concretion," "interaction," and "continuity." On the interactionist ground, a tripartite position is affirmed: a) a finality without mind, said to be a purpose which is not the purpose of any mind, is affirmed of nature; b) this finality is immanent; and c) therefore cannot be transcendent.

Briefly, the question raised is this: Why seek outside of nature for the explanation of what is found within nature? Aquinas claims that the effects of the divine ruling are the preservation

<sup>7</sup> As we saw, the *Timaeus* of Plato is full of this thought. "There is no principle so apparent in the physics of the *Timaeus*, or in ancient physics generally, as that of continuity. The world is conceived of as a whole, and the elements are formed into and out of one another." Jowett, Introduction to his translation of the *Timaeus*. *The Dialogues of Plato*, translated with Analyses and Introductions by Benjamin Jowett (Oxford: The Clarendon Press, 1875), III, p. 583.

of things in being and the movement of them toward good, but he also holds that these effects are achieved by the inner working of the things. Why not merely state this latter and leave out the "divine ruling"? One is strictly a datum, the other an interpolation. The question may be put in the following way. Why should it be thought that created blind forces could tend more surely by complicated ways to unified results than un-created blind forces? If things are—as Aristotelian finalism claims—guided from within by their innermost natures, why is it thought necessary to explain their action as the effect of a light shining upon them from without? "Why should it not be of the essence of nature spontaneously to seek ends?" The problem may be stated differently as follows. Surely no one will think that even a million things working together need any cause from outside themselves to account for their at last effecting one resultant—what else in any case could they do? Things, acting as they are, produce effects which we usually call orderly and beneficent. Why not accept them as given, that is, as self-operating and self-directing, and why make an illogical leap—a "cosmological" leap, says Kant—to transcendent and absolute mind?

The living thing is simply "an end which realizes itself," and—as E. Le Roy, for example, said—any argument from the order made by man to the order supposed to be made by God is under the handicap that the former order is imposed on things from without, whereas in the order of nature each part is in intimate communication with all other parts; and all parts, it may be definitively stated, serve each other, each part being means and also end in relation to each and all others. In a word, any finality put by us into things is external and requires an external cause, but any finality found by us is internal and requires and allows only an internal cause.

This is the old and ever-new immanent teleology. It is expressed by Kant, and afterwards with variations by Hegel and Schopenhauer and Hartmann. In the direct line of Kantian thought on this point, Hegel goes beyond Kant. Not only in the living unit but in the species and in all living things, and in the inorganic world also, he says, there is mutual service, part serving part, and each part of the whole thus being at once

means and end. Hegel has put the case in the simplest form: "Finality is not external to nature, it is immanent in nature."<sup>8</sup> It does not radically matter whether this finality (so long as it is taken to be other than finality by mind) is said to be the working of an impulse or élan, or to be by way of tropisms only, or to be at various points instinctive and unconscious.

It does not help toward explanation, as Kant knew, to say that such is the way of nature or to say that this is the nature of nature. Everyone knew all the time that teleology is immanent and the question has always been whether it is exclusively immanent. What all this thought about finality as internal comes to is a reassertion of our first thesis, namely, that nature tends to ends; and a restatement of our second problem, that of whether nature is directed by mind to ends. An internal teleology is surely no new thing, Aristotle being its early great proponent and Aquinas outlining it far more insistently than either Kant or Hegel. In St. Thomas' tautological words:<sup>9</sup> "Natural tendency is naturally in the natural thing." Life is often described as immanent activity,<sup>10</sup> and this phrase means immanent finalistic activity, a working toward the goal of inner preserved and developed being. And has anyone denied that part serves part within the organism or species, or between vital kingdoms; or that the organic is effectively served by earth and sun and air and water? The discovery of immanent teleology is like the discovery that the universe is a universe and that the living thing is alive. What better ground have we for the oneness of the universe than its internal oneness of telic order? Aquinas does not blush when he identifies one goal of the universe as a goal immanent to the universe. He says<sup>11</sup> that the goal of the world is immanent in it and the best thing in the world is its own order.

Everyone grants an immanent teleology, immanent to each unit and each species and to the universe. Nevertheless, two questions remain: (1) Is the immanent end, or are the immanent

<sup>8</sup> Hegel, *La philosophie de la nature*, translated by Véra (Paris, 1863), I, p. 185.

<sup>9</sup> Ia, q. 87, a. 4.

<sup>10</sup> E.g., *Contra Gentiles*, 4, c. 11.

<sup>11</sup> *Ibid.*, 3, c. 64.

ends, necessarily the only ends? This question is not answered by saying that there are immanent ends or even an all-inclusive immanent end. (2) If one were to say that the ends of nature are only immanent in nature, the question would remain whether these ends are sought by a nature which is either uncaused or is, in its causes, wholly blind and unguided. As Janet says, from an "immanent finality to infer an immanent cause of finality, is to put into the conclusion what is not in the premises, for it is saying that every cause that pursues ends spontaneously and internally is therefore a first cause."

The question set by the immanent end-seeking of nature is where and what it has always been. At the outset we saw that there are two related questions: whether there is finality, a tending to ends in nature, and whether this tending is guided by mind. To say "Yes" to the former question and "No" to the other, is not to handle the problem set by the affirmative reply, the problem of how we are intelligibly to account for the tending to ends in nature. And merely to say "I accept it, I don't account for it," is an admirable act of natural piety but no explanation of the given. Who after all does not accept it? Again to say that there are souls in living things, or entelechies on any particular model, is not to explain the original given order. In that case the soul or entelechy, whether in any sense an immanent orderer, is for our present inquiry another factor within the complicated set of factors seen to be working together in a harmonious way to a unified end; it does not radically explain, but is part of that which is to be explained.<sup>12</sup>

If the order of the world requires an intelligence, then this intelligence, although not intimately known, is known to exist, and is either within the world or outside, or both within and without. Not many persons can think the cosmos is intelligent and a person. Thus we are left with an intelligence that is ontologically apart from nature, not a part of or an item in nature, though present in nature by at least knowledge and power. This is what is called transcendent intelligent cause.

<sup>12</sup> Whether Driesch's entelechies are regarded as intelligent and directive of nature or merely act (in his words) "as if . . . endowed with knowing and willing," cannot be certainly said from his *Science and Philosophy of the Organism*.

We know that the cause of order in the world is an absolute intelligence, not because that order by itself demands immediately an absolute cause to account for it, but because anything less than an absolute is the "always conditioned" of Kant, and is not self-explanatory or self-existent. And this absolute cause, though in the world, is also not in the world; it is not part of the world. As Janet says, it does not form "part of the chain of finite and contingent beings which we seek to explain." In this sense, it is evident "that the cause of the world is apart from the world."

Several relevant questions have arisen in the last few pages:

(1) Why should not uncreated blind forces effect order as well as created blind forces? This is to ask why guided effort can achieve order, whereas unguided, chaotic effort cannot. But what challenges the mind, someone has said, is not that blind forces should tend to ends, but the supposition—implied in Kant and in naturalism and mechanism—that such forces are self-subsistent and exhibit an "exact choice of means" to ends.

(2) Are not mathematical relations precise and orderly? And who says that the triangle or square is the result of an absolute or of any intelligence? Is not the triangle "an inevitable consequence of the rencounter of primitive mathematical relations"? Triangle cannot be without being triangle, and no cause can intelligently be sought for its being triangle. A thing is what it is, and it is foolish to seek the cause of this equation—it would be like asking why a thing is itself and cannot be not-itself. But that a particular triangle or square should be demands a cause and perhaps an intelligent cause.

(3) Is not the world, and especially the order of the world, a scientific construct? Of course any scientist is relatively free to select for study, from this or that point of view, a particular corner of reality. But to say that therefore the rest of the world does not exist and the scientist makes the reality in which his interest lies is to assert articles of an epistemological faith, but proves nothing.

(4) In explanation of the way in which the organic or inorganic works, is it not enough to say that such is its nature or the law of its nature? To say this is like answering the question, "How does one account for growth?" by saying, "It's biological nature."

The question is as obstinate as ever. A mere "as if purposeful" answer coming from Kant or any other respectable thinker is no more effective than the pronunciamientos coming from those famous philosopher-scientists, Julian Huxley and H. G. Wells who said: "Variation is at random; selection sifts and guides it. . . . We must give up the idea that evolution is purposeful. It is full of apparent purpose; but it is apparent only, it is not real purpose. It is the result of purposeless and random variation sifted by purposeless and automatic selection. . . . When we reach man, evolution becomes purposeful. . . . Human purpose is one of the achievements of Evolution." Schoolboys could name the assumptions on which these assertions rest. The Huxley-Wells assertions say that although your neighbor is not a fool, he does just the things a fool would do.

At this point, Kant has to be declared burdened with an unusable epistemology. If from the actions of a thing, seeing it perennially on parade, we cannot know it in its being and nature and know its adequate causes, then our minds are in a bad way. Meyerson used the really operational method. He was convinced that the way to know the human intellect is to see the human intellect in action, not in one operation or at one moment, but throughout the history of philosophic and scientific achievement. This method, employed by all men in practice, is beyond dispute. We have to take each thing and the world itself at its word when it acts the way it does.

In contrast to the great works of Kant and Meyerson, we mention Hans Vaihinger's *The Philosophy of 'As If'* as applied to the problem of purpose or no purpose.

To get the force of "as-if," we suggest its conceivable variations. First, there could possibly be a descriptive "as-if": the world acts just as if it were directed by mind, and yet a) we do not know whether it is or not; or b) we know that it is not. In either case, the doctrine is theoretic. Secondly, the "as-if" could be pragmatic: act as if the world were directed by mind (as everyone does, anyway), and if the supposition "works," it is known that the world is directed by mind. Hans Vaihinger's "as-if" is in none of these positions. He says it makes no tests for truth because it knows a priori that there is no truth. He calls it a fiction: let men act just as if the world were directed by mind.

The supposition is helpful, but the world is not thereby proved to be so directed because we know beforehand that the world is not so directed. Vaihinger says this is the final Kantian doctrine. Kant's thought is represented in this way:<sup>13</sup> One can suppose an entity possessing substance, causality and necessity in their perfection. And under cover of such supposed entity one can make possible a systematic unity of the cosmic manifold, looking on all inter-relationships as if they were "the orderings of a supreme intelligence," and regarding "arrangements suggesting an end, as purposes, deducing . . . them from the Divine Will." The idea of God then, says Vaihinger, is based on methodological make-believe and is seen "as a heuristic fiction." We never find God, we always *know* there is no God; but we think and act as if there were. The supposition fits at all points perfectly, yet it remains only a supposition.

Vaihinger is unimportant, but it is interesting to notice the direction in which the Kantian "as if purposeful" seems, of its nature, to go, and how far it readily could go. No one would say that Kant was not a serious man, but it is possible that he did not take seriously enough his own doctrine on causation and teleology.

<sup>13</sup> Hans Vaihinger, *The Philosophy of As If* (New York: Harcourt, Brace, 1925), 279 ff.

## Darwin's Letters and Purpose

IN a century of thought presupposing evolution, two constantly recurring problems are those of ends and purposes. Various well known phrases suggest that these problems keep intruding on our minds; phrases such as survival of the fittest, struggle for survival, purposeful evolution, development and purpose, one increasing purpose, creative evolution, the unfinished universe, Samuel Alexander's "next number in the series," and Dewey's "control passing into our hands." It is difficult to bar from evolutionary thought the idea of "onward and upward" and the idea of "higher levels." Evolutionary thought is simply loaded with teleological presuppositions.

Says George Russell Harrison: "The God who is said to note each sparrow's fall also built something into a proton that keeps the sparrow from falling."<sup>1</sup> But cut it which way we will, it is hard to adopt the evolutionary idea without adopting a teleological idea, and it would be strange to omit in the present study the relation between evolution and ends and purpose. We take up

<sup>1</sup> George Russell Harrison, *What Man May Be* (New York: Morrow, 1956), 20.

that relation by simply seeing from Charles Darwin's life and letters<sup>2</sup> what the greatest evolutionist to date thought any conceivable purpose in nature and the law of evolution, as he saw it and stated it, have to do with each other. Darwin said he was not a philosopher and he did not want to be dragged into philosophical discussion; but his work is full of material of the greatest relevance to philosophy. Besides, his letters reveal him—a man presumably committed solely to scientific problems—prepetually asking a philosophical question; just one philosophical question, we may say, and this reiterated over and over: Has the world and especially the living world an "aboriginal" meaning or is it radically without a glimmer of meaning and purpose? Darwin was too vital and too human not to wrestle with that question.

The easiest way to get his reply will be to follow him and let him say what he thinks and feels; it is nevertheless not easy for him to speak on this subject, and as the years pass it becomes increasingly difficult for him.

People have wondered whether the brilliant and rigorous Hume was a trifler, possibly fooling with reality and mind and man. No one can doubt Darwin's sincerity on any question and least of all on purpose. He wants to see whatever is to be seen, and he gives years to observation and collating cases. But he has a hard row to hoe on the problem of purpose. He wants to see what is to be seen; yet it is evident that he wants to see that there is purpose and that he demands purpose. Briefly, Darwin's doctrine is this: biological evolution; evolution by natural selection; and an elementary oneness of all life, man's body and mind included. Darwin will not flinch on any of these points, even though the heavens should fall. Nevertheless, he would not like to conclude to no cosmo-biological and no transcendent purpose, and he never finds himself driven to such a conclusion. All the same, he is tortured between yes and no, meaning and no meaning.

He always keeps the issue clear. Darwin knows nothing of a mid-point between meaning and no meaning; life has some purpose or it has none; it is in some way directed to good ends by an

<sup>2</sup> *The Life and Letters of Charles Darwin*. Including an Autobiographical Chapter. Ed. by his son Francis Darwin; in three volumes (London: J. Murray, 1887). Also, *More Letters of Charles Darwin*. Ed. by his son; in two volumes (London: J. Murray, 1903).

intelligence, which for Darwin is God, or it is not so directed. Darwin uses the words "chance" and "design"; he speaks of "blind chance or necessity," and of "brute force" in the sense of blind force, and once he uses the words "design or purpose." But these are semantic variations of no great importance. He thinks in terms of either some direction of the world by God, or no such direction. If other elementary problems exist in this area, Darwin neither asks them nor suggests that he is aware of them.

His *The Origin of Species*, the most influential book of the century, appeared in 1859. In May 1860 he wrote (to Asa Gray): "I own that I cannot see as plainly as others do, and as I should wish to do, evidence of design and beneficence on all sides of us. There seems to me too much misery in the world." He says he cannot persuade himself that a good and absolute God designedly made one sort of insect with the express intention of its feeding on some neighboring sort. "On the other hand, I cannot anyhow be contented to view this wonderful universe, and especially the nature of man, and to conclude that everything is the result of brute force." Six months later he writes to the same correspondent: "But I grieve to say that I cannot honestly go as far as you do about design. I am conscious that I am in an utterly hopeless muddle. I cannot think the world, as we see it, is the result of chance; and yet I cannot look at each separate thing as the result of design." He cannot believe with Gray that "variation has been led along beneficial lines." Gray asks him what would convince him of design (September 17; presumably 1861), and Darwin says that the question is certainly a poser. His answer, in a series of "ifs," suggests some of his presuppositions. He says: "If I saw an angel come down to teach us good, and I was convinced from others seeing him that I was not mad, I should believe in design. If I could be convinced thoroughly that life and mind was in an unknown way a function of other imponderable force, I should be convinced. If man was made of brass or iron and in no way connected with any other organism which had ever lived, I should perhaps be convinced."

He agrees elsewhere that there is adjustment in nature and also a general beneficence. He finds "endless beautiful adaptations which we everywhere meet with." Hence he says, we must ask how the generally beneficent arrangement of the world is to be

accounted for. Some persons may doubt whether the world is, on the whole, a good or a bad one. Darwin, however, thinks that happiness decidedly prevails; yet he sees human and animal misery and says that the presence of so much suffering agrees with variation and natural selection and seems to him a strong argument against the existence of an intelligent first cause. Formerly he believed, by way of "the deep inward conviction and feelings which are experienced by most persons," in God and immortality, but says that the grandest scenes would no longer stir in him such conviction and feelings. He says he is as one become color-blind. Another source of conviction in the existence of God "follows from the extreme difficulty or rather the impossibility of conceiving this immense and wonderful universe, including man with his capacity of looking far backwards and far into futurity, as the result of blind chance or necessity." When thinking thus, he feels he deserves to be called a theist. But he doubts at once, because he is sure that man's mind has arisen from the animal and cannot be trusted to draw such grand conclusions. The upshot of his statement, made in 1876, is that Darwin does not know what to think. Five years later, near the end of his life, he records the same sort of stalemate: "If we consider the whole universe, the mind refuses to look on it as the outcome of chance—that is, without design or purpose." But the entire question seemed to him insoluble, because he did not trust the human mind, "which has been developed, as I cannot doubt, from such a mind as animals possess; and what would their convictions or intuitions be worth?"

Darwin wants to accept purpose and he feels that he can scarcely reject it. What makes him balk, with regard to this first bit of evidence, is his belief that man is genetically connected with the animal; that man's mind has come wholly "from such a mind as animals possess" and as a consequence cannot be trusted in "such grand conclusions."

He finds the world generally beneficent and feels that this active beneficence, along with the endless beautiful adaptations, argue for a mind as cause of nature. But the presence of suffering certainly argues against this. A man of kindly feeling who suffered much and patiently, he was made unhappy by the sight of suffering in the animal world. The logic of his view runs like

this: "If there is purpose in the world, and I for one can hardly give up the conviction that there is, still some of it, judged from its effects in the workings of nature, is not beneficent, some of it is horrible, some of it at least odd, hence I do not too readily agree if I agree at all."

He asks Lyell (September 17; 1861?) whether Lyell thinks "that the shape of my nose was designed." (Darwin had a sort of puggish nose, like two holes standing up in his face.) Lyell is to reflect and give an answer, but Darwin is beforehand with his reply: "If he does [think so] I have nothing more to say." He feels that his nose is, to say the least, a curious effect for an intended world to produce in any direct or indirect way. So, too, of man's rudimentary mammae; as he says to Gray (Dec. 11, 1861), he cannot admit that these were designed, though he has just said that he was inclined to raise the white flag with respect to design. The number and arrangement of the feathers in the tail of a bird is another item at which he sticks. For Darwin, there are two sides to any such question; he can hardly believe the feathers are designed or undesigned.

In *The Descent*<sup>3</sup> he argues for variation, a necessary element in Darwinian evolution. But then he wonders how the wing feathers of the Argus pheasant ever came to be "shaded in so wonderful a manner as to resemble balls lying within sockets." He has no reply, except to say he cannot believe them undesigned. "No one, I presume, will attribute the shading . . . to chance—to the fortuitous concurrence of atoms of colouring matter. That these ornaments should have been formed through the selection of many successive variations, not one of which was originally intended to produce the ball-and-socket effect, seems as incredible as that one of Raphael's Madonnas would have been formed by a long succession of young artists, not one of whom intended at first to draw the human figure."

The strange or curious does not disturb him so much as does the horrid and mean and evil. He asks,<sup>4</sup> as a rhetorical question, whether God caused "the frame and mental qualities of the dog

<sup>3</sup> *The Descent of Man in Relation to Sex* (first edition, London, 1871), II, pp. 141-42.

<sup>4</sup> *The Variation of Animals and Plants under Domestication* (first edition, London, 1868), II, pp. 431-32.

to vary in order that a breed might be formed of indomitable ferocity with jaws fitted to pin down the bull for man's brutal sport?" The way this question is asked, the telic element so redundant in it, suggests that nothing is closer to Darwin than questions of teleology and even of design. The suggestion is confirmed by the repetition everywhere of the problem of purpose, so that at last one wonders whether Darwin is concerned about anything except ends and meaning. He speaks of an innocent man killed by a flash of lightning and wants to know whether his friend Asa Gray (letter of July 1860) thinks "that God *designedly* killed that man. . . . I cannot and don't. If you do believe so, do you believe that when a swallow snaps up a gnat, God designed that that particular swallow should snap up that particular gnat at that particular instant?" He thinks that if the death of neither gnat nor man was designed, we have no good reason to believe that their first birth or production was designed. Again, he uses the instance of a man, "a good one or a bad one," killed by lightning, and that of the birth of a child who may turn out to be an idiot, each event occurring by the action of the excessively complex laws of nature. He can see no reason why man or animal may not have been "aboriginally" produced by yet other laws, and "that all these laws may have been expressly designed by an omniscient Creator" who foresaw every consequence. But, he adds, thought on the subject bewilders him.

Our earlier summary said that the chief obstacle to Darwin's belief in purpose was that he thought man's mind comes wholly from the animal and for that reason cannot be trusted. His second handicap arises from the facts of physical evil, suffering, misfortune. He always links "design and beneficence" and appears to feel that evil could not be an element of a meant universe and could hardly be considered a by-product in a meant universe.

He does not know how to make one picture of good and evil. His assumption tends toward the bourgeois humanitarian one, that life and human life should be free of sacrifice and suffering, though he himself suffered much. Once he mentions "designed laws" and "undesigned results," but is not content with such notions. Once he is inclined to look on everything as resulting from designed laws, with the details, good or bad, left to "what we call chance. Not that this notion *at all* satisfies me." He accepts

"the so-called laws of nature (i.e. fixed sequences of events)"; he thinks variability "governed by laws, some of which I am endeavoring very obscurely to trace" (letter of Nov. 23, 1856). But he also says we are "profoundly ignorant" of the causes of variation. There seems to be "no more design in the variability of organic beings, and in the action of natural selection, than in the course that the wind blows." In his study of variation he suggests that if the forms of rocks that fall over the cliff and are used by builders are not preordained, we might as well give up the view that variations in plants and animals are preordained for the sake of the breeder.

Seeing what has been done in domestic variation by artificial selection, he does not easily take to an original designed variation; not because it would make natural selection, which he playfully calls his deity, superfluous, but because he sees a big field of what he calls "undesigned variability" ready for natural selection "to appropriate to any purpose useful to each creature" (letter to Asa Gray, June 5, 1861). In these passages he continues to lean toward both the teleological and the purposed.

Here Darwin has run into a series of difficulties. He thinks a) that if things occur according to general unshifting laws, neither they nor the laws, nor yet they and the laws, can have been meant; b) that nothing is surer than the "action of natural selection," that it is a law and may possibly be unmeant; and, c) that if man can designedly vary things, neither that circumstance nor the supposed original variations could have been meant. He exhibits a strong bent toward cosmic monism. A dualism of human and superhuman purpose would be a scandal: there could be either one, but not the two; and there could be laws, that is, regular sequences in nature, but not meant laws.

We have to make one more note, because Darwin often makes it. He tends to believe in design; he teeters more toward meaning than toward no meaning in nature. No reader can doubt this. He is often perturbed and held back by the fact of physical evil in the animal and human worlds. The result of this tendency and inhibition in him and his inability to relate general laws to purpose and to relate any presumed cosmic purpose to human purposes, is, as he repeatedly says, befuddlement. He is always saying that, willynilly, he is stopped. After pros and cons on meaning in na-

ture, he frequently admits that the subject is too much for him. "I am bewildered." "I am in an utterly hopeless muddle." "But the more I think the more bewildered I become." "I feel most deeply that the whole subject is too profound for the human intellect." "You say that you are in a haze; I am in thick mud; the orthodox would say in fetid, abominable mud; yet I cannot keep out of the question."

This last statement (made to Asa Gray, Dec. 11, 1861) is one of the two things that may be indisputably said of Darwin in relation to purpose. He cannot let the question alone. The other point is that he is never confused about the issue; he knows it must be meaning or no meaning, purpose or no purpose, and he knows that where there is purpose there is mind. He has difficulty in relating regular sequences of events, which he calls laws of nature, to purpose. He believes in the efficacy of his law of natural selection and in variation, which latter he says we do not know in its causes at all: why a particular seedling shows a "new character transcends the wildest powers of conjecture" (letter of March 18, 1862). To say the least he certainly tends, judging from his terms, to think that variation and natural selection are teleological or end-seeking; but he does not relate them for sure to any possible purpose. He has a strong inclination to affirm purpose and "design," as against no purpose and "chance," for the whole expanse of things and most of all for man. He is brought to a halt, however, for these reasons: he feels that man's mind comes wholly from the animal and cannot be trusted; he is made unhappy by the odd and peculiar ways in which any overruling purpose there may be works out; and he is tortured by the fact of pain and suffering or physical evil. He gives no new argument for or against purpose and no new explanation of the orderly tending to ends in nature. Much less, and he says this quite clearly, does he give any hint of an explanation as to the origin of things. Possibly his little emphasis on the evident end-seeking in nature and on beneficence, which he affirms, and his recurrence so often to evil and suffering, come in large part from his native temper which was not blithe, and from the labor and pain which he endured. His belief that the mind of man arises wholly from the animal, and presumably from matter, helps in part to dictate his opinions. His repeated statement that man's mind therefore cannot be trusted in "grand conclusions" is

false, because based on the premise that man's mind is wholly animal in origin and nature; and false within itself because he actually trusts his conclusion that man came wholly from the animal. His statements about the origin of mind and its consequent untrustworthiness, made in 1876 and again in 1881, have to be taken in the light of what he said elsewhere, namely, he was neither equipped for nor used to philosophical reasoning. He wants (he says) to be let alone on the subject of a first cause, but he cannot let himself alone on it. In 1876 he says he must "remain an Agnostic," and as late as February 28, 1882 he says "I cannot see my way clearly." These words are said with difficulty. He never wholly gives up his belief in meaning; he speaks with candor and perfect honesty, yet he is, as he has often said, confused by the subject.<sup>5</sup>

From some points of view, the man next in importance after Darwin in theory of evolution is A. R. Wallace, Darwin's early collaborator and defender who knew beforehand the matter that went into Darwin's first famous work, and who announced before Darwin the latter's theory. Three decades passed, however, before Wallace announced his own complete theory. His work is called *Darwinism*;<sup>6</sup> this is done "on the same general lines as were adopted by Darwin; but from the standpoint reached after nearly thirty years of discussion, with an abundance of new facts and the advocacy of many new and old theories. . . . This is pre-eminently the Darwinian doctrine."

We state Wallace's position now in the sense which he himself gave to it, that is to say, as an addendum and completion of the Darwinian doctrine.

Wallace did not hesitate as Darwin did on the topic of purpose, but first and last affirmed purpose. He accepted (pp. 461 ff.)

<sup>5</sup> The concluding words of *The Origin of Species* are: "This is a grand view of life, that the Creator breathed life into the first form [species] or a first few forms, and that then all the other forms came to be under the constant laws of nature." These words are at times cited as proving that Darwin was a theist. We claim that these words must be seen alongside his entire thought and not in isolation; and seen in this light, they are not clearly theistic.

<sup>6</sup> Alfred Russel Wallace, *Darwinism*, an exposition of the Theory of Natural Selection with some of its applications (London: Macmillan, 1889).

Darwin's conclusion "as to the essential identity" of man's body with that of some higher animals, but balked at the view that man's moral nature and mental faculties have come from a merely animal source. This view, he said, "appears to me not to be supported by adequate evidence, and to be opposed to many well-ascertained facts." For example, special faculties in man—moral, mental, mathematical, and musical—"point to the existence in man of something which he has not derived from his animal progenitors," something not got by natural selection, the method of evolution received by Wallace as a loyal Darwinian. He thought that some new cause must be admitted for the appearance of life, sensation and man. People, he felt, could then accept the theory of evolution and also the spiritual nature of man and be relieved of the "crushing mental burden" imposed on those who take man as exclusively a product "of the blind eternal forces of the universe." This latter view, with its corollary that man's future is nil, was rated as a hopeless and soul-deadening belief. People of the other view "can look upon the universe as a grand consistent whole, adapted . . . to the development of spiritual beings capable of indefinite life and perfectibility." They see evil, but know that man is strengthened and perfected by struggle and effort. Such qualities as courage, energy and self-reliance<sup>7</sup> are developed in warfare against physical evils.

Wallace gave his later work, *The World of Life*, the subtitle, "A Manifestation of Creative Power, Directive Mind and Ultimate Purpose."<sup>8</sup> This volume was written to "summarize and complete my half-century of thought and work on the Darwinian theory of evolution." He declared that a directive mind is "demanded at every step of what we term growth," and an ultimate purpose "in the very existence of the whole vast life-world in all its long course of evolution." He cited (ch. 15–16) "a long series of facts and co-relations which we can hardly look upon as all purely accidental coincidences." The crowning product and purpose was the development of spiritual man. To the query whether nature is cruel (ch. 19), Wallace's answer was a decided negative; nature does destroy, but only as an essential means to biological progress. His general conclusion (pp. 391, 277–80)

<sup>7</sup> Qualities which he thought limited to northern peoples.

<sup>8</sup> London, 1910.

was that science, not asking "why" at all, brings more and more to light the "overwhelming complexity and diversity of this vast cosmos in its every part and detail," and that "beyond all the phenomena of nature and their immediate causes and laws there is Mind and Purpose."

In relation to purpose and meaning, the problem given new emphasis by the theory of evolution is this: the appearance of life with seeming purpose, and the appearance of human life with evident purpose, in a world which, on the hypothesis of radically no purpose and no meaning, thus turns a complete somersault. Nothing could be more irrational, nor more pathetic and defeatist, than the statement of a man such as Bertrand Russell who thinks that man, endowed with the power of thought, a knowledge of good and evil, with ideals and values, is an alien intrusion into a world of meaningless, blind force. We know that life seeks ends, we know precisely the ends it seeks, and it is bold to think that life has no purpose, neither an immanent nor an immanent-transcendent purpose. But if it is thought that the universe was originally without purpose, then to give to life a purpose of any kind is to bolt for a freakish dualism, to tear apart the continuity of being and to end in mystery and conundrum. That is what Bertrand Russell does, and it is what Darwin was tempted to do, but never did. In Russell's view, the coming of human life with evident purpose leaves all hope of an intelligible universe a wreck.

We add a brief statement of Bergson's view on purpose in nature. This view, not hesitant as was Darwin's, contains two peculiar points. The first is that as a young man Bergson declared against both mechanism and teleology. The other is that although in his last great work he declared again, in the same terms, against both of these, he simultaneously declared for: a) purpose; b) identifiable purpose; and, c) on the whole, a good purpose, identified as divine love.

In *Creative Evolution* he said no mind is directive of nature to ends. Mind could not be directive because such direction would be contrary to the absolute indeterminateness of the *élan*. This impetus or spirit of "go" demands that the gates of the future be open; whereas finalism supposes that all is ideationally given at the start, that there is no iota unforeseen, no radical creation or

invention in nature, and that a mind situated on some central pedestal could, as Leibniz the finalist said, see everything at once. Full-blown mechanism is just as bad; it implies that past and future are "calculable functions of the present." The trouble with each of these philosophies, Bergson said, is that it makes "time," the genuine agent, useless and inefficacious.

What are we to do, then? We can get between the two. Tendency is given, but not tendency toward anything: not a tendency either mechanistically or teleologically fixed in advance. An élan or impetus is at work. There is "progress toward vision," and our intellect "is intended" to see to the perfect fitting of the body to its environment, and to represent the mutual relations of things; "in short, to think matter." Is this finality, after all? No; it requires no "conscious or unconscious idea of the end to be attained." All is effected through the impetus. "The direction of this tendency is not predetermined."

In *The Two Sources*, he repeated this doctrine almost verbatim. He spoke of the intentions of nature, the rightness of nature "in attaching us by strong ties to the life she had ordained for us." Nature intended human solidarity, and intended it to be close. Man must live; and our physical structure arises from the need to preserve and develop our individual and social life. But this talk of nature's intention was only a handy metaphor. All Bergson wanted to say was that a life-impetus rushes through matter and takes from it what it can. For if one accepts either mechanism or finalism, "the creations of life are supposed to be predetermined, the future being deducible from the present by a calculation, or designed within it as an idea, time being thus unavailing." The fact is, there is nothing of either sort, no push or pull; there is just a going, an impetus, the élan vital.

He said this view is close to fact and can be tested by biology. At the same time, however, his later work went far beyond the early work. It supposed, even if it did not assert at the start, a source of life with its impetus. Besides, if we grant "a creative energy which is life, and which desires to produce from itself beings worthy to be loved," we see that this energy might sow space with worlds whose materiality would be the opposite of divine spirituality. In this way there would be purpose in nature. The purpose would be that of a loving God who would aim,

through love, to produce beings whom he would love and who would love him. "Beings have been called into existence who were destined to love and be loved."

The relations of any theory of evolution to the problem of purpose can now be put in two questions. First, could there intelligibly be purpose and evolution? Second, could there intelligibly be evolution without purpose? It was this latter question that Darwin was always asking; and we have heard his answer. Bergson finally gave at least a conditionally affirmative reply to the former question. These are the essential questions, and the type of evolution supposed, for example creative or emergent, does not change the character of either question, nor does the method and procedure of evolution.

Those who today give a positive reply to the teleological questions posed again by evolutionary theory are well represented in the following statement by Radoslav A. Tsanoff, professor emeritus of Rice Institute:

Animal behavior that at its rudimentary beginnings seems to be only very complicated chemistry, manifests increasingly at its higher levels a teleological tendency, and then unambiguously purposive and intelligent activity. The evolutionary biologist was bound to include man in his zoological museum, but the course of evolution in human life could not be understood fully in the earlier terms, as survival or extinction by fortuitously fit or unfit adaptations to certain environments, as a mere mechanics of behavior. The genetic process at human levels is a process increasingly directed by intelligence, a process of purposive activity, of choice between contending values, of achieving not only organic but also spiritual integration and fulfillment. This sort of genetic process is not a mere series of events but a significant career, which we commonly call history.<sup>9</sup>

<sup>9</sup> Radoslav A. Tsanoff, "Evolution, Teleology and History," *The Rice Institute Pamphlet*, Darwin Centennial Number (April, 1959), 51.

## *William McDougall's Teleology*

FOR the most part, science says nothing and thinks nothing about teleology. And yet science succeeds. For this reason, Bacon's statement on the sterility of final causes and his division of labor which turned over the inquiry about final causes to metaphysics rather than physics seem to be justified.

Scientists, however, are far from silenced on the subject. Of those who have given attention to teleological problems, the British psychologist William McDougall was one of the most insistent. Year in and year out, it was the same story with McDougall; he was persistent and consistent. He was exasperated because he could not convince psychologists of the reality of teleological activity in living nature. In his view, to deny teleological cause is equivalent to refusing to accept living nature; just as in Aristotle's view to deny such cause is to deny nature in general. McDougall created little interest in teleology among psychologists and he took their silence as a personal snub. Of course, it was not merely his teleological position that isolated him. He espoused other unpopular doctrines, such as soul, and body and soul; he declared for the transmission of acquired characters, and urged

study of the case for survival, which he thought grounded empirically in the results of psychic research. Add to these points the fact that he said some sharp things about life and education in America. Be sure, then, there was not likely to be a McDougall cult. Religionists, who liked him for his anti-mechanistic doctrine, could have found within his statements reason to qualify their joy.

The most uncompromising exponent of teleological doctrine in the century was the unpopular McDougall. From 1908 until his death in 1938 he never let up. In volume after volume, the teleological affirmation was central. He had the methodological problem of dividing his philosophy from his science, but teleology was at the core of both. Eventually the science and the philosophy, as relevant to this matter, were summed up in a couple of phrases. He said that the most fundamental working concept for psychology, and perhaps for general biology, is that of a conative, teleological factor wherever there is life. His accounting for the animal's perpetual striving toward goals was a simple acceptance of it. He said it is the animal's nature to seek goals.

He would not allow the psychologist to take what McDougall thought the stultifying position of denying the telic factor. Yet he himself would not transcend the vital process for an explanation of this factor.

His first work of any considerable importance, appearing in 1905, was on physiological psychology, and contained hardly a word on teleology. What was radically wrong with the position expressed there, he came to believe, was its failure to study the source of biological activity; it was mistaken even in scope. The character of animal activity and perhaps of all vital activity—this was his later position—is a striving, and the striving is for goals. Hence McDougall's eventual "hormic" psychology, *hormé* meaning a thrust, an onset, an impetus, a striving or effort. The conative factor, and not the mechanistic or the ideational, became the heart of both his philosophy and psychology. He claimed that conation and dynamic urge are given in every animal activity, that ideational control is sometimes and perhaps always given in it, but simple mechanistic causation never.

"Hormé" is a word for what McDougall thought is found in nature. By the mid-twenties, McDougall told why he had chosen

this word, and he identified more closely the affirmed reality. He said that he and John Watson began at the same point, with the fact (or what they considered the fact) of the unsatisfactoriness of the idea-psychology and the fact that the nineteenth-century psychologies neglected the datum of behavior and gave a cold shoulder to the general datum of action. Hence, in his *Social Psychology* (1908), the "purposive or goal-seeking" nature of man's activity was emphasized and the hormic theory of action was to some extent developed. A theory of action was demanded, since a "passive sensationalism" borrowed from the teachings of 1900 threw no light on the energizing of the organism. The cue came from comparing men and animals. The latter are seen to be actuated by instincts; when nothing appeals to their instincts, they do nothing. An instinct is regarded as something that sets energy free and also directs animal energy toward the goal proper to the species. The animal exhibits an instinctive striving; man's thinking is a striving, a seeking of goals, and the result, if successful, is satisfaction and quiescence. Often, this is obviously the case, but it seems to be true even when we do not clearly know what we seek or even *that* we seek. Such was the evidence which led McDougall to the hormic theory of man and animal developed in the work just named.

The name "hormé" was thought better than "libido" only because Freud had pre-empted this second word for a narrower meaning. Jung had used libido for "a hypothetical fundamental striving" and had used hormé in its original Greek sense of onset, impetuosity, onrush, urgency. The reality which McDougall called hormé is not mere behavior, but a striving, an effortful and conative behavior. This is identical with psychological activity, and is that which most of all is to be studied in psychology.

The hormic factor was described in many places and in slightly varying ways. It is commonplace to say that man is a purposing something; and by analogy we must admit that the animal's life is one long round of strivings, of efforts to attain, even to succeed. We can describe these movements one by one, but the description is unintelligible as long as we disallow the goal and the striving. The succession is intelligible only when we see the movements as parts of a process that has conative unity. To deny the conative character of animal movements is to deny the movements and to

deny animal life. To deny the goal of the conation and effort is scarcely more realistic.

Nobody progresses far in psychology, continued McDougall, without reverting to the idea of *hormé*, of tendency, an urge to a goal. Of course this idea may be disguised by such words as "set," "drive," "determining tendency," "motor-set," "prepotent reflex." Even the most confirmed mechanists in psychology speak of "determining tendencies." McDougall thought it better to be frank and accept the datum.

Observation of animals shows: a) each member of the species strives toward a limited number of goals; b) the goals sought are "characteristic and specific"; and, c) at least the tendency to strive is independent of example and prior experience. Therefore, we have to say that each member of the species inherits the tendency to seek goals.<sup>1</sup>

In this way McDougall arrived at the concept of "instinct," and raised the problem of the relation between instinct and prepotent conative set. Is the affirmed conative factor, the *hormé*-thrust, simply identical with instinct as understood by McDougall, or is instinct rather a kind of lane which the *hormé*-thrust follows to its goals?

His reply was, in effect, a repetition of all his work. Early in his career he began to advance the theory that "the energy displayed in every human activity might in principle be traced back to some inborn disposition or instinct." He thought the notion at least probable. He kept to this view, and in his *Introduction to Social Psychology*, gave a statement of the meaning and kinds of instinct. Each kind of animal, McDougall said, is born equipped with a set of advance dispositions. The human mind, too, has innate tendencies. How these first appeared he nowhere suggested, but said they were inherited, were the essential sources of all thought and action, the bases on which the character and will of persons and national groups are developed. The natural basis of the human mind is constituted by the sum of these tendencies.

<sup>1</sup> McDougall identified the chief goals as survival and growth. See his *Introduction to Social Psychology* (Boston: J. W. Luce, 1921), 26-27. He should, on his own functional view, have continued and said that the several instincts are specified by their objects, and all by the two objects or goals just identified.

Instincts are relatively unchanging, and are divided into specific tendencies and general or non-specific ones, arising from the make-up of mind when mental process attains "a certain degree of complexity" in evolution.

He held that in the higher vertebrates few instinctive modes of behavior remain unmodified by intelligence and by habits acquired through intelligence and imitation. Even the infant performs few purely instinctive actions.

Instinctive action is a decisive going to set goals, and is "hormic." To deny its hormic-telic character is to deny its reality. An instinct is more than an innate tendency or disposition to definite kinds of movement, because the most strictly instinctive actions are the outcome of processes not describable in merely mechanical terms. Instinct was said to be a psycho-physical process including these factors: a) a knowledge of some thing; b) a feeling in regard to it; and, c) a striving toward, or away from, it. We are "justified in assuming the conative aspect . . . because all instinctive behavior exhibits that unique mark of mental process, a persistent striving toward the natural end of the process." An instinct is identified as "an innate or inherited psycho-physical disposition which determines its possessor to perceive, and to pay attention to, objects of a certain class, to experience an emotional excitement of a particular quality upon perceiving such an object," and to act, or experience an impulse to act, in a particular way in regard to it.

McDougall claimed that no mechanical and non-telic conception is sufficient to explain human and animal behavior. The progression of the amoeba involves "streaming movements" incompatible with tropistic and mechanical explanations. The behavior of such an organism is not simply a local reaction but is a series of "total reactions," each "well adapted to secure the biological end." At the bottom of the evolutionary scale we see (1) total unitary reaction, which is the reaction of the organism as a whole with a coordinated movement of the parts, although the stimulus directly affects only one part; (2) the persistence of the effect of the stimulus, a persistence much like that shown by us when we consciously go through difficulties toward a desired end; and, (3) these persistent and total-unitary reactions are in the main adaptive and of a nature to promote the welfare of the creature.

The working of instinct is an innate working toward set goals. The action or reaction is set and determinate; so is the goal. The inner psycho-physical working called "instinct" takes remarkably straight paths to goals which can be identified. Instinctive movement is like the movement of a bullet from a gun; but it is also adaptive and persistent in the face of obstacles.

"Persistent conative tendency" is McDougall's own phrase. If required, there is a concentration of the energy of the whole organism in support of the "conative effort," and this is known to persist at times (as in the flapping of a bird's wings) until exhaustion, the entire effort being toward what McDougall called a "particular" end.

McDougall thought that careful, prolonged research on the problem of the transmission of acquired characters might yield positive results, and if it did, it would afford a working theory of biological evolution and prove a body blow to what he called the mechanistic dogma. He spent more than fifteen years experimenting on white rats and claimed to have established the fact of such transmission. Mind, he said, is therefore put at the heart of the evolutionary process and not left as an unintelligible excrescence upon life. The animal strives persistently toward a goal; at last, by hit-and-miss efforts, he finds a way to the goal; and in a few generations his progeny reaches the goal by notably fewer trials. Here (McDougall said) is persistent effortful action, toward an identifiable determinate goal and guided by the mental or psycho-physical. Only time is required to demonstrate the essential rightness of the theory of transmission.

This doctrine of transmission would give unity to the evolutionary movement, from amoeba to man. There would be in nature a single direction and one increasing purpose. The position held by McDougall supposed man's oneness in kind with all animals, and left unconsidered other difficult problems. What of the origin of "the mental"? Is all life hormic-telic and therefore, in McDougall's wording, mental? Is non-life synonymous with non-telic?

McDougall often opposed life to non-life, and his ground for doing so was the presence of the hormic-telic in the one and its absence in the other. To be alive is to be telic. To be telic is to be mental. Hence McDougall's formula: "All intelligent action is

purposive, and all purposive action is more or less intelligent." But are plants, which can hardly be said to be non-living, really intelligent? Or, on the other hand, will it do to say they are non-purposive, not goal-seeking? For McDougall the purposive implied emotionally toned effort. Yet, even so, there is difficulty. For perhaps continuity exists between the non-living and the living; in that event either the mechanical realm, allowed by him and abandoned to physicists, does not exist, or his own telic realm is not telic but mechanical. Again, if he was right in saying that the telic is the mental-purposive, and the non-telic its opposite, what of the origin of the telic in a universe which on his calculation was completely non-telic? He had no answer, and his affirmed telic-living-mental was a by-product of a world presumed to be innocent of the telic and mental.

This is an impasse which McDougall rarely mentioned and out of which he was not able to struggle. He tried two roads and did not like either.

Road One. A point about which McDougall was never happy was the affirmation, common in the England of his youth, that mind is an epiphenomenon or by-product of non-mind. Nor was he ever happy about the affirmation, common in the England of his maturity, that mind is an emergent. He was sure that these words solve nothing. The gap is real and radical between mind and non-mind and between life and non-life. How are we to bridge the gap? Not by the word "epiphenomenon," and not by the word "emergent." So McDougall claimed. By what, then? He said that in his earliest writings (1899) he had suggested that mind appeared by way of "the now fashionable doctrine of emergence." For a few years he kept to this position, and in later life appeared to be proud to have once held it, feeling it was a foreshadowing of the theory of emergence and the theory of configurations. Nevertheless, he soon lost faith in such a bridge and spent the rest of his life declaring it unserviceable.

Here is the way he rejected emergence as relative to the origin of life and mind.<sup>2</sup> Where there is life, there is purposive striving, and where there is purpose there is mind. Not all entities are purposive-hormic-living; some are accordingly non-telic and were

<sup>2</sup> William McDougall, *Modern Materialism and Emergent Evolution* (New York: Van Nostrand, 1929), 112-14.

said to be mechanistic and inorganic. "And there would seem to be no possibility that any teleological event can emerge from any conjunction of mechanistic events." McDougall's view was that "mind is utterly disparate from matter, that its organization and functions are wholly unlike physical structure and cannot be regarded as having been evolved from the latter." The theory of Lloyd Morgan and other emergentists was, for this reason, regarded as useless.

Road Two: McDougall suggested another way out, one which he said presents the fewest and least serious difficulties. Suppose we were to ascribe *hormé* and life and mind to all being; then the problem would vanish. It matters greatly, he said, whether in our search for the origin of mind we go up or go down the evolutionary scale. The usual method has been to begin far down and come up. It has been thought that there are no indications of mental life far down, and no certain ones somewhat higher up. But then unmistakeable signs are noticed, and people say, "Here mental life first appears." In this way, McDougall said, there is "a flagrant breach of the principle of continuity." He thought it better to begin at the top where by common agreement mind is operative, and then go down. Doing this (he said) we find "good reason" for inferring mental life in unicellular protozoa and, perhaps, even in some plants. McDougall was aware, however, that the problem of the origin of life and of mind remained. Life and mind were regarded by the mature McDougall as co-extensive; but never life and non-life. Yet he broke for a moment<sup>3</sup> with the whole of his life's work, and said he took all being as alive; a position which was at best very strange for him. He stated it as follows: Everything indicates an absolute break between life and non-life. Yet, by attaching great weight to the principle of continuity we assume the inorganic to be "not truly and completely mindless."

This statement would release McDougall from the impasse only by the rejection of the main direction and the central content of his thought put forward years before and years after the statement.

He was always saying that two worlds are given, the mechan-

<sup>3</sup>In "Mental Evolution," a chapter contributed to *Evolution in the Light of Modern Knowledge* (1925).

ical and the telic. This disjunction was so steadily and emphatically proper to him that any word inconsistent with it may be disregarded. He granted a mechanical world. The non-living is the mechanical; it is the non-telic. On this point he was much too uncritical. At least as early as 1911, in *Body and Soul*, he assumed the inorganic universe to be, once and for all, mechanistic; and as late as 1929 he dismissed physical events by saying that mechanistic activity is "commonly attributed" to them. Our question is not whether he was right in assigning telic action to the organic, but whether he was right in denying it to the inorganic. We see that some marks of organic telic action are lacking in the inorganic. Yet we ask whether a genuine hormé or appetitus is not found there, an intelligible tendency and, perhaps, tendency to an identifiable goal.

McDougall drummed up trade poorly and was unable to sell biologists and psychologists the notion of an organic hormé. Things went so far that he was abused, "more especially in America, of recent years, by dogmatic young mechanists," for attempting to show that the living unit exhibits a striving and a seeking of goals. He said he found the graduate students at Harvard, many of them coming from other schools, "with few exceptions" already grounded in mechanistic philosophy. Yet he kept on repeating the telic or anti-mechanistic point of view. His affirmation of the telic in the organic was as emphatic as its affirmation by Aristotle. He said: "The most essential character of life-processes seemed to be their goal-seeking." And again, "For psychology, and, I would say, for biology in general, the most fundamental working conception must be that of purposive activity." His statement of the hormic was not only his most constant thought, but the most vigorous and fundamental thing he had to say. Even functional disorders were taken to be failures of purposive adjustment. Thus McDougall spoke, almost in the words of Aristotle.

He said he won few adherents because we have grown up familiar with the doctrine of mechanism. Physical sciences assume that mechanistic principles, to which McDougall surrendered the inorganic, hold universal and exclusive sway. This assumption is what he called "the mechanistic dogma." He said that post-Newtonian mechanism, proper to mechanics, is applied to life and

human life; and this goes so far in theory and practice that man is commonly taken as a robot.

Among the main teleological problems are these: a) whether there is tendency in nature; b) if so, whether it can be known that mind is directive of any such tendency; and c) if so, whether any such mind is to be thought of as in any sense transcendent to the given world-process.

McDougall's reply to the questions is easy to see. He held that determinate tendency to determinate goals is given in every vital unit, but only in the vital unit. Secondly, he held that this set striving to set goals is guided by mind; teleological reference to goals is "mental reference," and implies foresight; a persistent striving toward a natural end is the chief mark of mental process. Thirdly, the affirmed mind was seen as immanent and not in any sense transcendent. Even the legitimacy of the problem regarding a possibly transcendent mind was brusquely shunted. Why does a certain animal seek a goal? McDougall replied: "Because it is his nature to do so." In tracing the rise of mechanism, McDougall encountered this problem of transcendent reference. The question had been asked whether such things as the solar system and lightning were designed, and McDougall said the reply of science was negative. The same question had been asked and a positive reply had been given, relative to animal structures and processes, until the Darwinian theory arrived. When the notion of extrinsic teleology fell, McDougall said, the notion of intrinsic teleology fell with it. But, he said, the latter does not depend on the former; rather, they are alternatives. For "the more fully we accept intrinsic purposiveness in organisms, the less do we need to postulate extrinsic purpose, and conversely."

We may sum up the chief points of McDougall's position on the teleological question in the following points:

1) His re-affirmation of the telic and hormic quality of the living unit. His perpetual reiteration of this quality was dictated by what he thought evidence for it, and was harassed by public non-acceptance.

2) He wanted universal evolutionary continuity. Man and animal and bird and insect are not to differ in kind. Perhaps even the plant is continuous with these.

3) He also wanted a gap between the inorganic, conceived

as mechanistically determined, and the organic, conceived as "mental," "hormic," "conative" and "telic," and not mechanistically determined.

4) The common ascription of mechanistic principles to the inorganic was assented to; in naming the marks of purposive action McDougall included some that are not characteristic of the inorganic.

5) The key concepts of his hormic psychology or psychic telism are "instinct," "hormé" and "mental." Perhaps the three are synonymous. To affirm any one is to imply the others, and to deny one is at least to challenge the others. The three characterize the living, and only the living.

6) The foregoing points concern the givenness of telicity and not the basic problem set by telicity. McDougall's statement that it is the animal's "nature" to seek ends, leaves untouched the problem set by the end-seeking character of life and non-life. His saying that the more an intrinsic working of nature to ends is accepted the less need there is of extrinsic guidance, is (we should say) an interesting attempt to support his general position, but simply restates the problem. In spite of his disjunction of telic and non-telic, McDougall remains enclosed in monistic process.

7) Several reasons may be suggested for his shying away from the problem of a possible cosmic purpose. As a youth he had read Tylor, Lang and Frazer, "and other authorities in that field." Then a painful personal experience in the loss of his mother "completed the destruction of any remaining orthodox belief in . . . any personal and all-powerful Director of our destinies." Thirdly, influential with him were his assumptions that Hume and Kant left us without certain knowledge of body or mind and a fortiori of the transcendent; he regarded philosophy as thereby relegated to opinion and to questions of "value"; and he assumed that we can have knowledge only through empiric science, backed exclusively by the pragmatic criterion. In these ways he was cut off from approach to the transcendent. It must be added that McDougall believed—as he thought, on empiric grounds—in human survival. And any theory of survival raises hormic-telic problems, and also the problem of transcendence; one problem being whether we ourselves possibly transcend this world and this time.

## Purpose in Dewey's Philosophy

IN his most famous work on education, John Dewey said that one of the aims of education is development according to nature. And in the first edition of their *Ethics*, though not in the much later greatly revised edition, he and Professor Tufts said that instincts and desires are not for pleasure but to maintain life: "Such is the undoubted biological fact."

Dewey was an Aristotelian teleologist in those statements. Aristotle's teleology and humanism are grounded both in empiric fact and in his metaphysics, and so far as they go are like a preamble to Christian humanism. Yet most likely Dewey himself would disclaim all metaphysics, and few would call him a humanist on the Aristotelian-Christian model. Aristotle was adamant for tendency in nature. Nothing is more common in him than the notion that events occur "by nature." Ratner says that in his early Hegelian years Dewey was consciously a teleologist; for the Dewey of 1887 the conception of an ethical end for man or the universe was "consistent only within a teleological interpretation of the world . . . the embodiment of reason and the manifestation of

intelligent purpose."<sup>1</sup> It is far from clear, however, that the mature Dewey consciously wanted to affirm tendencies in nature at all. Aristotle held that nature proposes a contemplative knowing as man's highest activity, but Dewey held that our highest good can come about only through a collective human attack on nature, and as we shall see Dewey's works suffer in general from some ambiguity on the problem of man's relation to nature.

Dewey was intellectually active into his eighties, and for over forty years his main teachings had been fairly well stabilized and were often repeated. We propose to bring several of them together on the question of purpose. A summary statement of his philosophy and relevant citations from several of his works should allow us to crystallize his teaching on any tending to ends in nature, and on any possible direction of nature by mind. His position on those two problems is clearly indicative of his philosophy as a whole: of his metaphysics and philosophy of nature on the one hand; and on the other, of his philosophy of education, morals and religion.

To get to the core of his view on ends and purpose, it is well at the outset to state the main outlines of his thought.

A chief premise with him at all times, often assumed and often consciously and briskly stated, is that this is a totally changing world. Darwin made less of this premise than did Dewey, since Darwin kept it to a particular context; and Bergson did not make more of it. Dewey's final formula, expressed in 1930, was that "to exist is to be in process, in change." This ground of *no being* but only *becoming* is the basis of his cosmology and metaphysics. He frequently scolded those who affirm any fixed and unchangeable being or principle. He was practical about the matter and held that it is man's place to change things. The scientific attitude is an attitude of interest in change. The things we see and hear ask questions, and we must seek an answer by introducing changes in things. This practico-evolutionary logic and dialectic is the one that counts and is true, mind itself being "intelligent or purposeful engagement in a course of action into which things enter."

A priori and antecedently, it might not seem to matter whether

<sup>1</sup> Sydney Ratner, "The Evolutionary Naturalism of John Dewey," *Social Research*, XVIII (1951), pp. 437-38.

we changed things or not, and whether it is or is not the nature of being to be in process. But attacking the "fixed and final," Dewey took the position that man is to change things, is to learn, and is to act for human good. Man is to act for the good of human solidarity. Dewey was evidently a teleologist in these matters; or, as he said, a meliorist. He was reared in Vermont and had a rugged individualistic background. But he was of a social turn, and for at least a generation his early individualism was tempered by social realities and by economic and social theories. It is impossible to affirm social meliorism without being committed to a teleology, and Dewey both affirmed and denied ends. He said ends are endless and there is no end which is simply the goal. "‘Endless ends’ is a way of saying that there are no ends—that is no fixed self-enclosed finalities." All the same, Dewey was almost as insistent as is life in affirming an end. He said that life exists in order that it should be, and in order that it should fully be. He said that education is the enlargement and enrichment of experience; and the end for man is a democratic fulness of life, an abundant life shared by all.

Did Dewey suppose these ends set by nature, or to have been affirmed by men despite nature, or somehow to be espoused by both nature and man? This question is difficult to answer from Dewey's own works. The words "nature" and "experience" are perpetually repeated in Dewey and appear to express something prior to social action and to man's freedom. But it remains difficult to say whether Dewey meant that "nature" demands such ends as enlargement of experience and fulness of life, or merely that democratic man demands them. Which is to say that, although Dewey was always claiming to reduce man simply to nature, it is far from clear that his affirmed "naturalism" left man on the level of nature.

If we put together his premise of all-change, that of deliberate change by man, especially as this succeeds in science, and also the affirmed good object of changes introduced by man, we have the positive ground of Dewey's experimentalism. This confirms and crowns rather than supersedes his pragmatism. Man can intelligently and profitably change his environment. He can do this in education where he can bring about desired and desirable changes. The same could be done in economics and politics, at

least by group action. The same could be done and must be done in religion: in 1935 Dewey declared that devotion to an ideal, through thick and thin, is an activity "religious in quality," and declared against what is commonly called religion. In morals, change is always occurring, just as it is in physical matters. In each of the areas, change is to be effected by man for man's good. Has not physical science decisively led the way? In these declarations for social progress through experiment, a progress inspired by and modelled on science, we find the positive foundation of Dewey's social philosophy.

Are we to say, then, that nature and human nature are purposeful? Is nature found to have direction to ends, or is nature merely directed to ends by man? Is man's own going toward good, once we allow for social pressures, entirely *ad libitum*, or is man in part orientated by his given natural being? To find a reply in Dewey himself is difficult. Dewey held man to be simply of a piece with nature—hence his "naturalism"—but the problem of man's relation to nature is, within Dewey's own writings, much more difficult than this ready identification suggests.

Dewey often affirmed the world to be all-changing, and yet he labored to have the world changed by rational inquiry for man's good. What have philosophy and religion done historically to better things? Dewey kept saying with vigor that they have done nothing. They have stood in the way of human amelioration and have served some elite or hierarchy. They have not declared for progress but for fixities, for first causes and last ends, for a transcendent and "supernal" region beyond man's reach. But, Dewey went on, a remote heaven is no answer to our needs and it can be an obstacle. No matter how true your metaphysical absolutes may be, they are impractical; for having granted these, human good and evil (he said) remain just what and where they have always been. We want an operational view and quick returns, for, said Dewey, the good is now or never.

Here we see the justice of Santayana's summary of Dewey on this point: for Dewey (as for some existentialists) only the immediate is real.

It is a sort of law with Dewey that "first" and "lasts," and similarly forms, structures, dogmas and traditions, are at best un-

workable and useless, and therefore untrue. In a static world they might make sense, but not in the given dynamic world. Such fixities do not count in an all-changing world. Ultimate origins and ultimate ends, whatever the ontological basis of either, mean little in an effective way. Careers here and now are the only things that count. Such is Dewey's overt position.

In the world we inhabit, what good, then, is a religion with a transcendent and heavenly reference? What good is the philosophy of the philosophers, for example that of the Greeks? Dewey would not advocate any half-way measure. He often said at least implicitly, let them be liquidated! His progressivism and meliorism had an element of intolerance.<sup>2</sup>

Dewey was indebted to many and had notable affinities with many. Hegel, he said, "left a permanent deposit" in his thinking, especially in regard to "continuity and the function of conflict." He was indebted to Francis Bacon for social utilitarianism; to Bergson for theory of reality; to Comte for theory of knowledge and theory of history. He had affinity with Marx in theory of religion, in spite of the fact that Dewey stood against Marxian dogma and against Russian Communism. He was indebted to William James's psychology and to his own theory of science for his philosophy of experimentalism; to Darwin and Bergson for theory of mind. Dewey was dynamic and himself germinal and wonderfully inspiring, and yet he was remarkably assimilative.

This sketch of his background will help us understand attitudes and doctrines expressed by him. We shall see from some of his representative works how he came to his mature position, making a special effort to keep track of his theory of ends and of purpose.

Born in 1859, Dewey was brought up under the Hegelian flag, as were many Americans at that time. Consequently, in its earliest expression his philosophy was all form and structure and largely without content. Under the influence of James and Bergson, he

<sup>2</sup>Reviewing Dewey's *The Quest for Certainty* (*Hibbert Journal*, XXIX, 1930-31, 175) Prof. J. H. Muirhead remarked that Dewey shows "a certain bias throughout against what the writer calls the traditional philosophy . . . one cannot rid oneself of the suspicion of an element of caricature."

reacted, fell in strongly with the dominating evolutionary thought and began to be deeply impressed by science as a successful venture in knowing. His philosophy finally turned out to be, as he said, all content and almost without form or structure.

His revolt against the sovereignty of Hegel was under way before he was thirty, and by the time he was forty the revolt was, at least in his own mind, total. An essay in 1896 on the problem of knowledge showed the anti-Hegel rebellion to be pronounced. In that essay he was for Bergson and against Hegel; he declared for action, progress and the individual, and against fixed and general concepts and laws. Knowledge (he said) does not justify itself; on the contrary, knowledge is "a statement of action," a statement required for "the successful ongoing of action." Sensation was said to be better than reason and to be on the side of progress. Why is this so? Because a general notion "stands ready made, fixed forever," whereas sensation expresses the never-failing eruption of the new. Sensation stands for the unexpected, the novel, that which cannot be reasoned out in eternal formulae, but must take its chances in the "ever-changing flow of our experience. It thus represents stimulation, excitation, momentum onwards. It is a constant protest against the assumption of any theory or belief to possess finality." The individual rather than fixed laws or institutions incorporates truth. Both the control and the stimulus of action are within the individual. "He is the standard and the end."

That essay, given as a talk at the University of Michigan, was not so maturely or completely Deweyan as a couple of articles of his in 1906 from which we now quote. The human world "means here and now, not in some remote transcendent sphere. It moves, of itself." Against the view which accepts fixities, Dewey set his own activist and evolutionary conception. The resulting dichotomy, which was to be repeated many times in the next forty years, may be put in parallel columns:

good and true reality; the fit material of passionless, beliefless knowledge—

the real

*vs.* a realm of belief only; thought to be mere appearance, subjective, mere impressions in consciousness.

*vs.* the unreal.

metaphysical reality; "made up      *vs.* "need, uncertainty, choice,  
wholly of established things . . .      novelty, and strife."  
fixities."

a Stoic knowledge-theory claim-      *vs.* "the despised principle of be-  
ing metaphysical monopoly.      lief": access to the supremely  
real by faith and love.

thinking as squaring with the      *vs.* thinking as inquiring.  
"ready-made, fixed, and fin-  
ished."

Belief and love in the face of a restless, uncertain world—in short dynamism and voluntarism—were at that date Dewey's main affirmations. His faith principle had the advantage that it could be used at a later time as a working hypothesis and be experimented with and tested by action. His insistence on social claims still lay hidden in the future, for Dewey's youth had been coincident with the heydey of American individualism. Experience, the immediate, and the individual, sum up much of Dewey in his forties. "It all comes to immediate experience," he said, "personally conducted, personally initiated, and personally consummated." He would not hug any special belief, for instance in a special sort of deity or of freedom; he merely asked people to believe in belief. We are thus "on the road to that most desirable thing—the union of fullest acknowledgement of moral powers and demands with thorough-going naturalism." This, he said, gives us the possibility of a common understanding: in language, thought and outlook.

On this view, it is up to us to make the world and direct the world; we are neither to accept the world nor at once to accept and make the world. If values were "automatically injected" into our experience by any force not reflected in human memories and projects, and if purpose rode "in a cosmic automobile toward a predestined goal," it would be merely physical and mechanical; even though called Divine Idea or Perfect Reason. The moral would be to have a good time, because some tomorrow "the cosmic automobile arrives. . . . Values cannot be both ideal and given. . . . Objective ontological teleology spells machinery. Reflective and volitional, experimental teleology alone spells ideality."

This was the John Dewey of 1906 in his middle forties, and also John Dewey at seventy-five, in the Yale lectures of 1934. A transcendent world and a human world—these cannot go together. A God-purpose and a man-purpose have to be opposed to each other. The world has to be monistic, and purpose has to be monistic. If divine purpose exists, then there is no human purpose; and if human purpose, then no divine purpose. Man imposes “volitional, experimental” purposes, and refuses to accept nature’s purpose. Such was Dewey’s position.

In 1909, for his fiftieth birthday and for the jubilee of Darwin’s *Origin of Species*, Dewey wrote an essay on the influence of Darwin in philosophy. To understand Dewey, it is necessary to read that essay, no matter what else one reads of his. Its author said that the conceptions reigning for 2,000 years assumed in their theory of nature and of knowledge the superiority of the fixed and final, and rated change and origin as signs of deficiency and unreality. The Greeks saw life as achieving a telos, a genuine final term, a completion. This was thought to be achieved through a formal activity or form, and all nature was thought to be a fulfillment of purpose, comparable to the fulfillment in a plant or animal. The Schoolmen also saw nature in terms of real essences, hidden forms and occult faculties; an idea (so they thought) is at work in nature.

Galileo, Descartes, Copernicus and Kepler, with their doctrine and especially with their method and attitude, said Dewey, were already undermining all claim to truth in this ancient and medieval position. “Fixed first and final causes” were expelled from astronomy, physics and chemistry; but they held on in biology. Then after one hundred and fifty years Darwin’s principle of natural selection cut the old philosophy down; with this principle, “There is no call for a prior intelligent causal force to plan and preordain.” Perhaps Dewey was pressing a little; at any rate, he said that Darwin “holds that . . . the design argument as applied to living beings is unjustifiable; and its lack of support there deprives it of scientific value as applied to nature in general.”

The result is a totally new philosophy. Not only answers but questions themselves change. For “the new logic outlaws, flanks, dismisses—what you will—one type of problems and substitutes

for it another type. Philosophy forswears inquiry after absolute origins and absolute finalities in order to explore specific values and the specific conditions that generate them."

The very question of a mind directing nature is outlawed. Once we admit the only verifiable or fruitful object of knowledge to be the present set of changes and the consequences flowing from it, no intelligible question can be asked about that which is outside.<sup>3</sup> To say we can justify truths, social bonds and forms of beauty, only by going to "some inclusive first cause and some exhaustive final goal, is intellectual atavism." Accordingly we shift from wholesale essence to our own concrete purposes; from a once-for-all cosmic intelligence to our own present intelligences; from an ultimate goal of good to an increase in justice and happiness. We no longer need apologize for present meanings and uses, nor look for "a wholesale transcendent" remedy for evils and a like guarantee of good. It is unnecessary to refute earlier philosophies, since little by little they will be recognized as futile.

Suppose it were shown that "life as a whole is regulated by a transcendent principle to a final inclusive goal." The proof would be impractical and useless. Our troubles would remain just as they are now.

That was the mature John Dewey. Twenty-five years later he gave a more definitive formulation of his religious thought in *A Common Faith*; but he did not teach something additional or different. In this secular monism, man is always set off against God and the gods, the order man makes is always set against the order found in nature and against any supposed orderer of nature. Essences, first causes, substances and ends are rated as useless and are vilified.

In 1916 Dewey's main work on education appeared in book form. This is one of the simplest expressions of his philosophy, the calmest and best balanced, and perhaps it will live the longest. He himself said it was his best statement up to that time. Although

<sup>3</sup> The claim has been made that Dewey's chief aim was a universal and final scientific method, an attempt to out-Descartes Descartes: "The root metaphor of Dewey's entire construction is an ideal, world-wide axiomatic system." See May Brodbeck, "Dewey's Theory of Induction," *Journal of Philosophy*, XLVI (November 14, 1949), p. 791.

not directly relevant to his theory of purpose in nature, it did say that education is one with growing; Dewey said that the results of bees' activities may be called ends, not because they are designed or intended, but because they are true fulfillments of what went before—a statement which might seem a retractation of the scolding he had given the Greeks in 1909 for holding that life tends toward completions. A year earlier Dewey and his daughter had said: The schools of tomorrow will have the "positive virtues—energy, initiative and originality—qualities that are worth more to the world than even the most perfect faithfulness in carrying out orders," and will replace "the colorless, negative virtues of obedience, docility and submission."

In 1919 Dewey gave a series of lectures in Japan on reconstruction in philosophy. The topic suited him well; it was what he had long been concerned with, and the resulting book is remarkably simple and clear. Here as in all his writings he pitted the new against the old and against any hang-overs from the old.

Philosophy in days gone by, he said, was not free. It was a product of society and was produced for society; it had a mission, and whatever it did had to be "in a spirit congenial to the spirit of past beliefs." All the great constructions, he said, have been tied to preconceived faiths. They have set out to justify things; and for that reason they had to make much of reason and an over-pretentious claim to certainty. They claimed they went beyond science and were necessary because the sciences fail to reach complete and final truth. "Philosophy has arrogated to itself the office of demonstrating the existence of a transcendent, absolute or inner reality and of revealing to man the nature and features of this ultimate and higher reality." It had to claim to be superior. But now the task of philosophy is seen to be to clarify men's minds on the social and moral strifes of their own day.

Francis Bacon above all, said Dewey, turned philosophy into an instrument of power over nature; and no longer of power over men in the interest of class, sect or person. As a result, we now have active experimentation versus supine acquiescence and parrot-like recitation. We have a collective attack on nature, and steam and electricity have actualized Bacon's prophecy.

We get a concomitant series of transfers: from interest in the eternal and universal, to interest in the concrete, specific and

changing; from the authority of fixed institutions and classes to the authority of natural inquiry; from the noble and elevated and hallowed by time to "works" and "experience as an ultimate criterion of value and validity"; from intelligence as the original shaper and final cause of things to intelligence "as the purposeful energetic re-shaper"; from a bondage-to-fixed-ends to a denial that nature has "inherent longings and aspiring tendencies toward ideal ends." Nature and science are removed "from contact with poetry, religion and divine things," and the gates of the future, as Bergson intimated, are open: anything might conceivably happen. Ends are said to be banished from nature, and our human purposes accordingly begin to become important.

The modern philosopher has to get rid of the dead weight of beliefs and institutions and appeal to experience as "a final test and criterion." The stuff of experience is given: connected doings and undergoings; sensori-motor coordinations; habits; adaptive courses of action. What more do we need? Experience "carries principles of connection and organization within itself." Even the lowest level of life, as in the amoeba, has some organization. This de facto organization "renders unnecessary a super-natural and super-empirical synthesis." Such was Dewey's confirmed position.

Much the same doctrine went into his Gifford Lectures, given ten years later. The problem, he said, is an old point of departure versus a new one, his rhetorical questions making clear where he stood. Is knowledge justified only when it is a revelation of antecedent existences? Are regulative ends and purposes justified only when shown to be properties of things, existences or essences? His explicit reply was that "it is through what we do in and with the world that we read its meaning and measure its value," and in fact we now have a feeling of control "passing into our own hands."

He thus appeared to have little new thought in 1929, and probably not much novelty in 1919. His new books were like new and elaborated editions of his remarkable little essay published in 1909 on the influence of Darwin on philosophy.

The most compact statement of his philosophy is in the article "What I Believe."<sup>4</sup> There he said that to be is to be in process.

<sup>4</sup> *The Forum*, LXXXIII (March 1930), pp. 176-82.

He had been asked what the meaning of life is, what its purpose and the purpose of the universe? He kept merely to human purposings and answered: "There are many meanings and many purposes in the situations with which we are confronted."

Later,<sup>5</sup> the stress of a debate made some points more specific. The subject was, "Is there a God?" Dewey said this wording loaded the dice in favor of the opposition. The wording should be: Does the God exist? The God of Abraham was meant, said Dewey, and the existence or non-existence of this God is something that matters every moment in the life of believer or unbeliever. Dewey's opponents (he charged) fled to an inclusive God—a God, so as to come to terms with modern science, and this is a "thinning down and rarifying" of the meaning proper to the object. If, said Dewey, one wants to be a modernist with merely an inclusive God, which does not square with an exclusive cult and tradition, or if one wants merely a guarantee of moral idealism and optimism and an object of love and devotion, why not go completely secularist? We have new beliefs based on science and an "expansion and distribution of valid meanings and goods through large ranges of experience." This secularized humanism enjoys, together with a "larger peace," all the values that the liberal or illiberal theist still tries to attach to special experiences and objects. For these reasons, Dewey thought that the idea of God might either be dropped or framed wholly in terms of our human experience. Even so, Dewey was an agnostic and not at atheist; he did not deny the possibility that there might exist a personal will, one which was "causative and directive of the universe." He was secularist and anti-theist and he said that he feared for religion if its future depended on finding evidence for the existence of such a will.

We may claim that Dewey had expressed his Yale lectures and had repeated them many times before he delivered them in 1934 under the title *A Common Faith*. He was hurt because in the controversy in the *Christian Century* he had been regarded as irreligious. In the Yale lectures he said he was religious in the most genuine sense, but that the religions themselves were irreligious. He argued as follows.

Human relations, he said, are charged with verifiable values.

<sup>5</sup> *Christian Century* (February 8 and March 22, 1933).

Why not rest our case on them and bring thought and action to bear on their full realization? Among the realities in our nature are "affection and passionate desire for justice and security" and the strong emotions that come from living under oppression and inequity. But what do the religions do about these values and with these leads? They stand by! Belief in the supernatural (he claimed) is an obstacle; it succeeds in diverting attention and energy from ideal values and from the study of how to promote them. To criticize "the commitment of religion to the supernatural is thus positive in import." Religions as we have them, do not let us realize the depth and sweep implied in natural human relations. We can do better than that in realizing values on a naturalistic basis, and our activity in realizing them is "religious."

What then are we to do? Not any two things, for Dewey had never been fond of dualisms. He still would not affirm this world and also a transcendent and supernatural world. To affirm either natural or supernatural was in his theory to deny the other. It was always *either* this world *or* that: "One alternative is dependence upon the supernatural; the other, the use of natural agencies."

Religions, he said, thwart the realization of really religious values enjoyed in our experience. Is there anything we can do about it? Dewey's reply was that these values must be emancipated from the religions: "The opposition between religious values as I conceive them and religions is not to be bridged. Just because the release of these values is so important, their identification with the creeds and cults of religions must be dissolved."

Here as everywhere Dewey was sticking to an absolute naturalism and monism. If the supernatural or even the transcendent was allowed, the diversion of energy (he said) would be fatal. A personal will directive of nature might be dialectically demonstrable. However, it is not demonstrated, and if it were, it would be useless; belief in it is actually harmful. We have purposes, we put purposes and meanings into our lives. How then could there be purpose and meaning antecedently in nature? The supposition is contrary to a rigid monism and seemingly for that reason it is ruled out. Our conscious human purposes are elementary in the whole of Dewey's philosophy. They are our purposes and are not implicated in any possible cosmic purpose. We are to unify

the knowledge we have at any given time. This is to be done, however, not on "an impossible eternal and abstract basis," but in view of its bearing on "the unification of human desire and purpose." Our knowledge, cooperatively got and cooperatively had, and brought together on the basis just named, is "a sufficient creed for human acceptance." The "common faith" affirmed is a compact restatement of doctrine expressed in 1906, 1909, 1919 and 1929.

One of Dewey's constant themes was that the natural and the supernatural, in the sense of transcendent, cannot be reconciled. At the same time he had trouble in trying to reduce man wholly to nature. We hold that he never succeeded in doing it convincingly. In Darwin's formulation, nature was a struggle: nature was struggled against and was hardly to be accepted; nature was later said to be red in tooth and claw, and Thomas Huxley claimed that ethical process is contrary to the usual direction of nature. In Dewey's meliorism, man must buck nature in order to ameliorate things. Besides, Dewey was brought up, as his biographers make clear,<sup>6</sup> in a cramped religious atmosphere, and there is evidence that he imbibed the notion that human nature is evil, a notion that he later rejected. Then too, it is hard to suppose that nature is not "determinate," is not what it is; but such a view means fixities and was too much like Hegel to please Dewey.

Thus, it seems to us that Dewey, wanting man to be of a piece with nature, was, nevertheless, pre-committed to setting man against nature. This ambiguity always kept reappearing in his thought.

Two problems left Dewey somewhat up in the air, and the two are centered in his fear of anything beyond "nature," or beyond the immediately given. One was his fear of anything transcendent; he perpetually brought a solidly closed mind to this problem,

<sup>6</sup> Cf. *The Philosophy of John Dewey* (Paul Schilpp, editor, Evanston and Chicago: Northwestern University Press, 1939), part I, "Biography of John Dewey" by his daughters. Cf. also George Dykhuizen, *Journal of Philosophy*, LV (October 9, 1958), p. 881: Dewey's parents "were protestant in religion, predominantly puritanic in conduct, and discriminating in their preferences. It was along these lines that Dewey's early life was ordered."

and we may suppose that this fear came, in part, from his general fear that Hegel would again catch up with him. Whatever its source, this fear left him closed to the antecedently given. Santayana made the statement that only the immediate was real for Dewey. The other problem also remained a problem. It was the problem of his always being ambiguously tangled up with reducing man wholly to nature, and yet his perpetually claiming for man intelligence and freedom. This ambiguity leaves the reader of Dewey with questions. If man is one with nature, is it not strange that man is to stand over nature and that Dewey supposes that man can and should change nature?

In general, we hold that in these matters Dewey misconceived his own position. Dewey did not really believe that man is all one with nature. Nor did he believe that no tendencies exist in nature, or that the tendencies of man to ends and fulfillments are just like the tendencies of cobalt and larkspur. Trying to hold onto the idea that there was such identification made things difficult for himself and needlessly bothersome for his readers. His problems began, perhaps without his knowing it, with the problem of what he was to run from; but they soon came to the problem of how he was to regard man, and where, cosmically, he was to place man. In general these problems were much more difficult than Dewey's manner would sometimes suggest.

## A Continuing Problem

THIS chapter will attempt to state in part how the problem of tendencies and directions in nature, and the problem of any mind directing nature, stood at the middle of the twentieth century. Each of these two problems was being neglected, as it had long been, but each was also being reconsidered and an affirmative reply was given by certain groups to one or the other, or to both. A negative reply was implicit in certain positions, notably in naturalism, positivism, and in some existentialists. An explicit negative reply to the first problem was found especially in Marxist biologists; and of course a negative reply to the second question is absolutely presupposed by Marxism. The others just mentioned, whose reply if given would be negative, kept both the questions and the answers in abeyance. Positive answers to the first question were more in evidence than they had been for many years. The most notable reaffirmations were coming from two groups working in widely different fields and with widely different interests: first, from certain biologists who in this regard were carrying on a relatively constant Aristotelian tradition,

some of them even affirming divine direction in nature, and doing it much more critically than earlier scientists such as Kepler did; the second group was busy reaffirming natural law, and seemed to be unaware of thereby reaffirming teleology.

We shall review the affirmative positions summarily, beginning with the biologists who take up roughly where Darwin left off. As we saw, if Darwin's thought on direction and tendency in living nature is studied in his voluminous letters, a positive reply to that question and also to the question of a mind or God as possibly directing nature to ends seems to be viable in him. But each of the replies has its difficulties for Darwin, or rather, he had his difficulties with each of the questions. We saw that his early collaborator, A. R. Wallace, affirmed divine purpose in nature, and in passing we note that the poet Alfred Noyes was particularly eloquent in his autobiography, *The Unknown God*,<sup>1</sup> in stating his conviction that nature, above all living nature, is the product of "design"; a conviction evidently influenced by Darwin and Wallace. Noyes made the following points: 1) Darwin's "grand sequence of events" had some meaning and purpose. 2) The elaborate development of man, especially in the qualities making him in some way "an inheritor of eternal values . . . must be part of that purpose." 3) From time immemorial, the race in its deepest striving "had been searching for the purpose and meaning." 4) It was reasonable to suppose that we see in this striving the beginnings of one of the great advances in evolution, an advance lifting a section of the world "to a new order of life." 5) If there was meaning in the process and if agnostics were right in regard to our helplessness before the Unknowable, help as well as purpose must come from above.

Hans Driesch is known for his doctrine of "entelechy" which is at once a final cause and a directive force. Said Driesch: "Entelechy, as we know, is a factor in nature which acts 'teleologically' . . . regulatively."<sup>2</sup> "The *finis*, the end, of course, cannot work, but an agent having a tendency towards an end within itself, or, in psychological terms, an agent that has the

<sup>1</sup> Alfred Noyes, *The Unknown God* (New York: Sheed & Ward, 1934), 324-25; cf. 168-69.

<sup>2</sup> Hans Driesch, *The Science and Philosophy of the Organism* (second edition; London: Black, 1929), 268, 323.

'idea' of the end in its imagination may act causally, and therefore you may, if you like, call entelechy a *causa finalis*."

Contributing to a volume on "design,"<sup>3</sup> Driesch went farther and said that his entelechy principle is mind-like. "No guidance, no plan, no design—these are the most important negative characteristics of the monistic theory. . . . Matter and something else are at work, and this 'something else' acts in a teleological, a *whole-making* way. I have called it entelechy . . . and I may say that it acts in a mind-like way, i.e., according to a plan or design."

In the same volume, Sir J. Arthur Thomson said that thoughtful men have long been asking "whether there is a purpose in Evolution. This is one of the questions which Science neither asks nor answers. What Science seems to show is that we cannot 'make sense' of the Universe and our place in it unless we believe in the reality of Purpose—of Divine Design that *has counted* in the past and will continue to count in the future."

C. Lloyd Morgan said: "Now it is my belief that this evolutionary ascent of mind in living creatures is due to the Creative and Directive Power of God. But this does not imply that any such phrase as 'the ascent of mind' is applicable to God, as *Spiritus Creator*. . . . What I find in evolution is *one great scheme from bottom to top, from first to last*. What I also believe is that this advance throughout nature is a revelation of Divine Agency. And . . . it may be said that the evolution of mind reveals the agency of Mind. But it is, I believe, Mind or Spirit infinite and timeless. . . . Does not an evolutionary scheme . . . lend weighty support to their belief in Mind or Spirit as Creative and Directive of all novelty and recurrence?"

These statements, of course, were sought, and distinguished scientists were chosen to make them. But they are strong statements, and the strongest of them was one published elsewhere. An American biologist, Maynard M. Metcalf, made a vigorous confession of faith in living nature's direction and purpose. He was writing on "Intelligent Plan in Nature, Evidence from Animals"<sup>4</sup> and remarked that not all individuals or kinds are

<sup>3</sup> *The Great Design* (Frances Mason, editor, New York: Macmillan, 1934).

<sup>4</sup> Maynard M. Metcalf, "Intelligent Plan in Nature, Evidence from Animals," *Scientific Monthly*, XXXVIII (June 29, 1934), 547-53.

well adapted, and therefore some have perished. But "one of the things which most impresses us is the adaptation of plants and animals for the lives they live in the midst of their surroundings." The fish is adapted for life in the water, and the bird even more remarkably for flight. Insects, molluscs and worms are adapted, and one-celled animals "show equally detailed and remarkable adaptations." Adaptations change as animals change from one kind of life to another, as in passing through the tadpole stage, and the principle of change in adaptation is probably illustrated in every organ in the higher animals. There is parallelism in adaptation; for example, between cuttlefishes and vertebrates. These two are unrelated, and in evolution and in embryonic development their eyes follow wholly different roads, yet come out to the same result. "The keenest imagination is wholly unable to follow the course of the evolution of an organ so intricate as the eye of man. It seems almost beyond belief. But for two eyes, in unrelated organisms, to start in different portions of the body and, by very different series of changes, to reach a structure fundamentally the same functionally, even in great detail, yet wholly different morphologically, is fairly flabbergasting. The wildest imagination could not invent such things. One stands dumbfounded in the presence of such phenomena. This all surely suggests plan, purpose, in nature."

Dr. Metcalf suggested that the word "purpose" is too limited to express what was given, namely "a fundamental organization and character of the universe itself, without which the universe could not exist . . . the trend, the direction of all existence in its most fundamental aspect."

He felt that the following question was inevitably raised: Blind, mechanistic non-purpose—or intelligence and purpose? "Our question is whether this masterful self-regulating system in nature is due to Mother Carey's wisdom or to chance." It is somehow due to mind and the personal, was Dr. Metcalf's answer. "This is the confession of faith of a humble follower of science, to whom the endeavor to view all phenomena honestly has indelibly impressed the spiritual phenomena of personality, the overwhelming importance of the personal . . . in other words, that God's will sustains everything and that all is directed by intelligence and is purposeful." Dr. Metcalf even tried to

identify the purpose: It is creation, he said; it is growth; it is growth in beauty and especially in the beauty which inheres in persons. "Man himself is why, so far as he goes."

Whatever his field, the modern scientist is ordinarily little conscious of questions about direction in nature and any possible director of nature. In the social sciences, he may implicitly give a positive or a negative reply to the first question and yet be unaware of the question. As an exception, however, we cite the economist Kenneth Boulding who has been doing notable work in philosophy, paying close attention to the biological bases of human conduct. Dr. Boulding says<sup>5</sup> that from the outset the organism is equipped with a sort of radar set.

The gene clearly carries some kind of a blueprint even in the earliest stages; it certainly has 'know-how' of a most elaborate kind, even if it does not have conceptual knowledge, nor does it seem to have any learning ability. . . . Once the organism has developed to the point of awareness, even far below the self-conscious level, it is aware of comfort and discomfort, danger and safety, and these constitute primitive value orderings according to which it moves in its dimly perceived world. Even in such lowly organisms as the molds and slimes, we observe behavior which seems inexplicable without some kind of primitive awareness and a primitive value ordering of some complexity.

At most the scientist feels that both of our main questions is outside his field and is none of his business. And yet as we said, a considerable body of literature is appearing from biologists bold enough to assign tendency to ends in living nature, and Dr. Metcalf and some others have been saying that the order of nature is the work of mind. Of course, any pro or con on this latter issue is outside biological science. The fact that some scientists do go out of their way to make the assertion leaves their statements all the more challenging. Dr. Metcalf himself pointed out that what he said in this regard was obviously not to be taken as scientific description. Most interesting of all is a letter from his own brother to a student. In this letter which, incidentally, shows

<sup>5</sup> Kenneth E. Boulding, "The Knowledge of Value and the Value of Knowledge," *Ethics and the Social Sciences* (Leo R. Ward, editor; University of Notre Dame Press, 1959), 32. Cf. Boulding's work *The Image* (University of Michigan Press, 1956).

how tentatively and hypothetically a scientist proceeds on any question, Dr. Wilmot V. Metcalf wrote:

To my thought; my experience and my observation of nature suggest, as the most probable guess I can make, that nature has its origin in intelligence, in love of the beautiful and in purpose, that is, in personality. The evidence for this, as I see it, seems to me to establish a very strong probability that this hypothesis corresponds to reality, and so I live in the thought of its probability steadily in my consciousness. I cannot make it seem probable or real to me that nature came to be, or always was, as it is, merely by chance or without thought or plan or purpose. And I cannot see that the fact that I cannot, as yet at least, understand the origin of personality, weakens in the least the evidence that personality not my own does exist and is active in the universe. Science does not refuse to form any working hypothesis about its problem in hand, because it cannot find an hypothesis that explains everything at once. It simply tackles its problems one by one, tests and modifies and develops them—all with the hope and with the experience that in this way progress may be made toward a larger vision of reality. Of course, if from my experience and observation I draw the induction that personality not my own exists and is active in the universe, and if this induction leads to contradictions or absurdities or increased rather than decreased difficulty in understanding nature, then my guess is worse than useless. But if it leads only to an unsolved mystery beyond, then it does only what all new insights into reality do for us. The larger the circle of our understanding, the wider the circumference at which we touch unsolved mysteries.<sup>6</sup>

For biologists, the affirmation of tendency to ends, an affirmation made classic by the biologist-philosopher Aristotle, is a continuous one. But some biologists are so insistent on teleology that they are not to be omitted. Take Professor Lillie of Chicago University who refuses to tear either biology or philosophy apart from the other. Each complements the other: "Philosophy cannot dispense with empiricism any more than empiricism with philosophy." He praises physico-chemical analysis as a part of biological method, but says that when biology becomes exclusively analytical "it misses its aim."

Dr. Lillie seems to be coming to the conclusion that the living

<sup>6</sup> Letter by Wilmot V. Metcalf, quoted by Maynard M. Metcalf, *op. cit.*, 553.

unit does what it does because of a psyche within it. But the question of a possible form or soul, directive of certain activities, is in a way second to the question of the fact of direction. Dr. Lillie makes a great deal of this fact, using these words: "Exact regulative control"; "determinative control"; "compensatory activities" or "regulations"; "regulations" by which deviations from the normal biological conditions are automatically corrected"; "adaptive"; "directiveness"; and "maintenance."<sup>7</sup>

In Dr. Lillie's view a study of biology is inadequate and unreal if it omits teleology and the tending of living units to ends. His insistence on "direction" raises the question about the irreversibility of time. Perhaps we cannot, strictly speaking, conceive the reversibility even of a limited sector of physical time; when we see a movie run backward, the pictured reversion of a chunk of physical time—things running in an "abnormal direction"—it is incredible enough. But when it comes to reversing the direction of biological time, the question seems to make no sense.

Part of the basic thing that Dr. Lillie and others want to say is that the biological unit is teleologically determinate in its action and in its being.

Granting the teleological factor—Dr. Lillie and many scholars insist also, as Plato did, on a "chaotic" or "random" factor—the more basic question is: "How come? Is directive activity an ultimate or primordial factor of nature—one whose existence long preceded the evolution of living organisms? In other words, does it represent a special kind of agency continually active in nature and contrasted in its essential nature with the random force? Or are the random and undirected activities of nature—those based on the 'fortuitous concourse of atoms'—the primary

<sup>7</sup>Ralph Stayner Lillie, *General Biology and Philosophy of Organism* (The University of Chicago Press, 1945), 5-7, 37-45, 88-110. Edmund Sinnott, geneticist of Yale University, emphasizes "organization" and sums up the thought of many in his *Cell and Psyche: the Biology of Purpose* (Chapel Hill: Univ. of North Carolina Press, 1950), 46: "What impresses these thinkers is the striking resemblance between the progressive, regulatory, and (as Russell says) 'goal-directed' processes of development and physiological activity, on the one hand, and on the other the phenomenon of purpose, of the drive toward an end, which is the basis of most mental or psychological activities"; and 104: "The basic question is the origin and nature of this organizing, goal-seeking quality of life."

ones and themselves capable of giving rise to the existing diversification without any teleological guidance?"<sup>8</sup>

On what he calls "the immanent teleology of organic activities," the English biologist, E. S. Russell,<sup>9</sup> is probably even more insistent than Dr. Lillie. He says that this immanent teleology must be the basis and background of our biological thinking, although elaborate exact analysis in physico-chemical terms is also indispensable. As a rule, Russell avoids the words "teleology" and "end" and substitutes for them "directiveness" and "end-state." But in this matter he is simply an Aristotelian teleologist. He speaks of "action directed towards end-states or goals which are normally related to the biological ends of self-maintenance, development or reproduction. This we may call directive activity." Common to development in the living thing and construction by man's freedom is "the continuous ordering and arranging of the materials available, in such a way as to achieve a specific end-state of ordered, and, in the case of the living thing, organised, complexity." Russell says that what is given is "the vast real of the organic, with its directive, creative and regulative activities."

Another British biologist, J. H. Woodger, has long been well known for maintaining the same position. In his chapter on teleology,<sup>10</sup> he cites J. S. Haldane who, perhaps somewhat in spite of himself, speaks of the organism as "a self-maintaining whole"; "the requirements of the body as a whole"; and "the coordinated activities of the whole body." Woodger notes that in Haldane and in other biologists unfriendly to teleology,<sup>11</sup> one perpetually finds such terms as "adaptation," "survival," "good," "purpose," "aim," "end-result," and the "requirements of the body as a whole." Woodger claims that although men have been

<sup>8</sup> Lillie, *ibid.*, 89.

<sup>9</sup> E. S. Russell, *The Directiveness of Organic Activities* (Cambridge University Press, 1945 and 1946), 2-3, 170-76.

<sup>10</sup> J. H. Woodger, *Biological Principles, A Critical Study* (London: Routledge & Kegan Paul, 1929; 2nd impression, 1948), ch. 10, "The Antithesis between Teleology and Causation."

<sup>11</sup> Interesting is Sir Charles Sherrington who, in *Man on His Nature* (first edition; New York: Macmillan, 1941), is unfriendly to cause, final cause and teleology, and yet repeatedly uses such language (133) as "stretching out toward its goal in muscle and skin."

commonly divided into mechanists and vitalists, each school makes teleological assumptions. Whichever side a man adopts, "he will not thereby avoid 'teleology.'"

Another group affirming teleology at mid-century comes to the problem from a strictly human context. The question with these new teleologists in this: What are we to do about human problems, above all in the age of dictatorships? What kind of wall must we either discover or build up to save mankind? The political law is an obvious law for man. This, made by us, looks after us. But who is to protect us from the law itself and from the lawgivers? To what law must the lawgivers be subject? How does one finally "ground" law? What is its basis? Is the mere fact of state law the last word? If so, one law seems as good as another. Secondly, how does one find some kind of law for good in general, and not merely for the good ordinarily effected by civil-political law?

As soon as men begin asking these questions they are rejecting positivism's theory of law and of human values. They are supposing it possible to find some non-arbitrary ground for law and for good. In some way or another, this ground has to be nature. Thus, we have a group of new natural-law philosophers. These are appearing at many universities and in many countries—Paul Weiss of Yale, Lon Fuller of Harvard Law School, Peter Stanlis of Michigan University and Detroit University, Samuel Stumpf of Vanderbilt, Leo Strauss and Wilber Katz of Chicago University, A. P. d'Entrèves of Oxford, Gustav Radbruch of Germany, C. S. Lewis of England. Arriving at natural law from a variety of studies, interests and pressures, they all reach substantially the same conclusion: there is a law of nature for man.<sup>12</sup>

What their teaching comes to in every instance is one, two or all of these claims: 1) Man has a nature—it is something particular and distinctive to be man: man is unique and irreducible, responsible and rightly free and inviolable: there is a law for man and a law for thing. 2) Man has an end set by nature, and

<sup>12</sup> See, e.g., Fuller, *The Law in Quest of Itself*; Strauss, *Natural Law and History*; A. P. d'Entrèves, *Natural Law*; Radbruch, "Die Erneuerung des Rechts," *Die Wandlung*, II (1947); and the summary of these and others in Leo R. Ward, "The Natural Law Rebound," *Review of Politics*, XXI (January, 1959), 114-30.

mankind can—perhaps barely and fumblingly, but really can—find its way to this end by a prudentially-wise choice of means.

3) Some kind of boundaries are set by nature for man's good: he acts "rightly" and "does good" only within those boundaries; and man's intelligent and free choice of means, and on occasion of standards, has to, and is "bound to," keep within those boundaries in order to be man-worthy and good. This boundary line, set by nature for man, means exactly that—it is set by nature for all men, for "the common man," the more or less ignorant, the more or less learned, man at home, man in the local community, man ruled, and man helping to rule. It is some kind of rock-bottom, more or less well known; but, sinking below it, man in his action is not up to a truly human level.

If there is any such law, it is a law for man and it is given by nature. The end is set by nature, at least in some general over-all way. Degrees of approach to this or any end are, in that relation, degrees of good. Man has much freedom with regard to means: he sees these and freely chooses among them. The end and highest human good is given by nature.

The simplest way to say these things regarding what is good by nature is to say with Aquinas: "Everything desires *to be* in its own mode of being." Man wants to be man, and John Brown wants to be both man and this man; "want" meaning simply that there is a natural tendency or drive *to be*. The "*to be*" of man, thus naturally wanted, is the good of man. But a stone also wants to be, and to be in its kind, and the good of stone is the "*to be*" of stone. As Aquinas says: Good adds to being the relation of being desired. It is empirically discoverable both that things are and that they want to be. That which tears down and wipes out their being wholly or in part is, so far, an evil for them, and what helps them to be is, so far, their instrumental good. Their intrinsic good is their being, standing, as it naturally does stand, in the relation of being desired.

People have had to learn this "natural" and common-sense view, and they have done so. They have had it knocked into them. Whatever cuts down their being—pulls off an arm, gouges out an eye, wears out a lung—is evil for them. Whatever protects their being and builds up their being is good for them. By and large, mankind thinks and speaks in terms of instrumental

good and formulates this readily in the double negative: "Poison is bad." Tolstoi stated and repeated (in *What of Life?*) the idea that people have to live in terms of good: life cannot otherwise be conceived. They naturally want to go for their total good, and in striving, and at times struggling, to be, they naturally stand against those things that, insofar as their senses or intelligence or their dumb being can tell them, would deflate their being. Ideally this is what they do. They see and do, they see the good of various value types such as health and virtue, and they go for that good. However, as Socrates, St. Paul, Horace and all men have seen, man is sometimes perverse and refuses to go with the being-nature of man.

The fact that ordinary men rarely if ever advert to the intrinsic good, namely, their being in the relation of being desired, is a tribute to the intrinsic good.

We take mankind in its action to be saying that there is some kind of law set by nature for man. Law is a guide and norm of action on the way to any particular good, to all goods, and to the highest good. If they do in effect say this, they are saying that, according to their lights, there is in man's being some kind of receiving set which can pick up the direction proper to his being, and can ordinarily learn, through insights and social tutelage, to go more or less satisfactorily with his being-nature.

All of which is to say that we take the natural-law philosophers, old or new, to be committed to a teleological view of human nature.

Many events have made men for generations balk at the idea of a given nature of man to be respected by all. Kant is a special case when he says that he looks for an a priori law, and will have nothing to do with the empirically given natural tendencies of man, and Sartre is an interesting case when he says there is no human nature. But when the followers of naturalism refuse any given human nature, or any given direction to ends, and any ends conceivably given by nature, it must be that they are denying nature in man not on empirical grounds, but in order to protect a general position.

That, we think, is what they have been doing. The American philosopher D. W. Gotshalk says that it is time for them to face up to a teleology given in man's nature. Gotshalk is concerned

with saving naturalism, but he also suggests that for naturalism to "go teleological" would be in the interest of truth and not merely an *ad hoc* expediency attempt to save the face of naturalism. His personal aim is of less concern than some points implied in his challenging remarks.<sup>13</sup> The odd eventuality is that naturalistic philosophers should have neglected natural tendencies for so long—almost as if they wanted to be in the a priori class of Kant. What are we to think when it is necessary to jog naturalistic philosophers into considering the question of nature tending to ends?

Dr. Gotshalk has wondrously stated the meaning of final cause. He says that each thing known to us—an atom, a star, an animal, a man—"has its specific paths through time." Consider a cat or a dog: "Its given being has a given particular direction in time, and shifts [which we doubt] from time to time. This direction might be called the determinacy of its energy, or the determinate trajectory of its being." The same thing can be said of a stone falling or a man cheering: "Each is realizing a determinate or specific trajectory of being evident to observation. This specific matter-of-fact directionality immanent in things and exhibited by them in time I shall call their telic factor." His conclusion reads: "This teleological principle is in conformity with all the relevant naturalistic evidence, but it must surmount the long-standing and powerful antipathy to teleology characteristic of modern naturalism and still vigorous in naturalistic circles today."

For some decades American naturalism has been unable to raise the question of possible directions and possible ends in nature.<sup>14</sup> Its inability to do so comes primarily from fear and inhibition, as does its Olympian aloofness from the question of a possible mind directive of nature.

<sup>13</sup> D. W. Gotshalk, "The Paradox of Naturalism," *Journal of Philosophy*, XLIII (March 14, 1946), 152-57; and "A Sugestion for Naturalism," *ibid.*, XLV (January, 1948), 5-12. See also Gotshalk's *Structure and Reality* (New York: Dial Press, 1937), ch. 6.

<sup>14</sup> In "Teleological Explanation and Teleological Systems," *Vision and Action* (S. Ratner editor; Rutgers University Press, 1953), Ernest Nagel uses the word "teleological." But he is little versed in the historical and existential relevance of "the telic factor" and thinks teleology has primarily to do with propositions and not with things.

Dr. Gotshalk's assertion of teleology, of tendencies to ends in nature and in man's nature, is a fitting summary of a teaching we have seen asserted over and over in Western thought. Aristotle will always remain Mr. Teleology, but the doctrine of an inner drive of nature to ends is strong in medieval thought, and we saw it rigorously formulated in Aquinas and at a later date in Spinoza. The same doctrine has often been repeated: in Hobbes, in Darwin, in McDougall's hormic psychology; in a wing of twentieth-century biologists; in the firm though not voluminous directives of Gotshalk; in tentative and indeed slight suggestions of Dr. MacLeod;<sup>15</sup> and in the rejuvenation of a natural-law position.

All this repetition makes more convincing Bergson's statement that final cause will never be defeated. Final cause appears to have as many lives as there are ages of mankind. But most philosophers and most scientists are still mum on the subject; some are violently opposed even to the question. Dewey said that the question itself is closed; and some continue to have queer notions about teleology.<sup>16</sup>

We conclude that a teleological position is a "natural." For Aristotle, Aquinas, Spinoza, and Kant, it comes down to saying that individual things *are*, they *act*, and are *what they are*. But what they are, not merely in their naked essences, but in their total contextual existence, is a much more complicated story, and is the sequel to the story of their naturally and inevitably tending toward ends like themselves. The actual tending is extremely complicated. Many things of many and even diverse kinds are tending to and achieving order in this or that corner of nature and in the whole of nature. Their achieving order and achieving good and very great good—*optimum* is the word of Aquinas—is the work not of a mere necessitation of matter, or even of a mere necessitation of form and end, but is also the

<sup>15</sup> Speaking at the 1956 meeting of the American Association for the Advancement of Science, this psychologist (of Cornell University) claimed there is great need of a teleological principle. Cf. *Time*, January 7, 1957, 42; cf. also Robert B. MacLeod, "Phenomenal Constancy and the Problem of Motivation," *Canadian Journal of Psychology* (1949).

<sup>16</sup> E.g., Wolfgang Köhler, *The Place of Value in a World of Facts* (New York: Liveright, 1938), 376–81.

work of mind. Such was the reply of Plato and Aquinas, and perhaps it was Aristotle's reply. Kant's balking just short of an outright declaration for mind is one of the most interesting moments in the history of thought on teleology in the Occident. He balked where we would expect Kant to balk and where he had balked on other fundamental problems such as cause and substance. The idea of order as given in nature, and again the idea of mind as directive of that order, was a hump over which Kant could not get. Each of those ideas, he said, was at least a principle regulative of thought. But he asked whether it was a principle constitutive of being.

Dewey balked at the question of mind's directing things in nature, and for reasons less formidable than Kant's. One reason was that it had ceased to be the custom for science to ask the question. Another was that Dewey proceeded on a monistic assumption. He therefore could not put together these two ideas—that of man's here and now shaping things, and that of God's having shaped things. He said our age was getting a transfer from the idea of intelligence as the original shaper and final cause of things to man "as the purposeful and energetic re-shaper." Besides, Dewey said, experience "carries principles of connection and organization within itself" and even a flea has some organization, and this *de facto* organization of the living thing, Dewey said, "renders unnecessary a super-natural and super-empirical synthesis." Whereas Kant had asserted that the tiniest living thing raised a question to which only the affirmation of mind could be the answer, Dewey took the living thing as given and asked no questions.

It is only with difficulty, if it can be done at all, that evolutionary theory dispenses with either of our fundamental questions; a fact abundantly illustrated by many, such as Darwin, and Wallace, and Bergson. Of course, we can refuse questions and take nature, life and evolution for granted. The animal does just that, and the infant does it. But as children mature, some are sure to ask depth questions; it would take a super-totalitarian fiat to keep the questions smothered.

In our century we have occasion to raise again the old teleological questions. Think how those questions have arisen in the context of endless biological studies since the *Origin of Species*

in 1859. Psychological studies have had a big day since their quasi official inauguration in 1876 with both Wundt and Brentano; and it is going to be difficult to keep psychological studies severed permanently from telological studies. Likewise, the pressures of living will go on asking serious questions, as they obviously do now for the natural-law philosophers. Like it as he will, man is engaged in a kind of death struggle with life, and he is asking and must go on asking about possible directions in nature, and about the possible fundamental meaning of life.



# Index

## Analogy

argument from, 102-4, 106

## Anthropomorphism, 31, 104-5

Aristotelianism, in bad repute, 117-  
18

## Aristotle

and autotelism, 42

and Thomas Aquinas, 42

anthropomorphism, 31

ethical theory, 43

his problem, 29

mechanism, 31-32

on causes, 29-30

on end and final cause, 30-32

on evil, 33

on God, 34-36

on good, 33-34, 35-36

on order, 36-37

on teleology, 28-41, 214

perfectionist and value element,  
30

Automatism, 39, 70

## Bacon, Francis

final cause, 122-24

summary of schoolmen, 117

## Berdyayev, Nicholas

on meaning, 10, 11

## Bergson, Henri

a loving God, 174-75

final cause, 50-51

mechanism and teleology, 173-  
75

purpose in nature, 174-75

Berkeley, Bishop, 131, 133

Bosanquet, B.

on teleology, 109

Boulding, Kenneth E.

organism and value, 206

Boyle, Robert

mechanical philosophy, 127-28

Brodbeck, May

Dewey's method, 195n.

Burtt, E. A.

metaphysics of science, 121, 122,  
127-28

## Cajetan

a limited world-orderer, 154

Cambridge Platonists

"candle of the Lord," 130-31

Carteron, Henri, 40

Cause

*See* Aristotle, Thomas Aquinas

Chance, 77-79, 93-94, 93n.

Claudel, Paul, 9  
 Communism  
     and naturalism, 3  
     *See* Marxism  
 Concretion, 156  
 Continuity, 64-67, 183  
 Copernicus and teleology, 119-21  
 Cornford, F. M.  
     on *Timaeus*, 19-24  
 Creation  
     Thomist view, 24n.

Darwin, Charles  
     agnostic, 171  
     beneficence, 166-67  
     good and evil, 168-69  
     “grand conclusions,” 170-71  
     “grand view of life,” 171n.  
     his nose, 78  
     natural selection, 169  
     purpose in nature, 163-74  
 Dawson, Christopher  
     the primitive and universals, 58n.  
 DeCoster, J.  
     chance, 94  
     evidence from order, 111  
     good in the effect, 99  
     internal principle, 111-12  
 Descartes, René  
     on final cause, 124-25  
 Descoqs, Pedro  
     the two questions, 91  
 Determinate, 69-76  
 Dewey, John  
     a common faith, 198-200  
     agnostic, 198  
     and Hegel, 192, 201  
     and William James, 191  
     “endless ends,” 189  
     ends, 189  
     ends banished from nature, 197  
     evolution, 188  
     experience, 189, 193  
     experimentalism, 189  
     facts ask questions, 2  
     fixities, 192, 194-95  
     man and nature, 190, 200  
     meaning of life, 3  
     meliorist, 30, 189  
     “mind,” 188

Dewey, John (*continued*)  
     monist, 199  
     naturalism, 195, 199  
     “nature,” 189, 190  
     on education, 195-96  
     on God, 198  
     pragmatism, 189  
     progress, 190-91  
     purpose, 198-207  
     reconstruction in philosophy,  
         196-97  
     religions, useless, 199  
     “religious in quality,” 190, 199  
     teleology, 187, 189, 194  
     totally changing world, 188  
     transcendence, 195, 199  
     *See* Brodbeck, Ratner, Santayana  
 Dondeyne, Albert  
     metaphysical order, 109  
 Driesch, Hans  
     ends and entelechy, 203-4  
     order, 12-13, 91  
 Dreiser, Theodore  
     life's meaning, 8-9  
 Dysteleology, 113-14

Emergent evolution, 182-83  
 Ends  
     *See* cause, final cause, teleology  
 Evil  
     *See* Aristotle, Darwin, Hume,  
     Plato, Thomas Aquinas  
 Evolution  
     and meaning, 203  
     and purpose, 163, 175  
     *See* Bergson, Darwin, Dewey,  
     McDougall, Tsanoff  
 Existentialism  
     a negative reply, 202  
     tragic feeling, 7

Fate, 77-79  
 Final cause  
     a cause, 43-44, 51  
     instances, 53-54  
     in the inorganic, 64-67  
     knowledge of, 54-58  
     psychologized, 49-51  
     universality, 68-80  
     *See* Aristotle, Thomas Aquinas

Flint, Robert  
knowing other minds, 103

Freud, Sigmund, 178

Galileo  
science and God, 121-22

Garrigou-Lagrange, Reginald  
final cause "attracts," 50  
nature of intellect, 56-57

God and purpose, Chapters 7 and 8  
*See* Aristotle, Dewey, Kant, M. M. Metcalf, W. V. Metcalf, Thomas Aquinas

Gotshalk, D. W.  
determinate, 75n.  
final cause, 213-14  
teleology, 3

Gray, Asa, 165, 167-69

Gunther, John, 11-12

Haeckel, Ernest, 113

Haldane, J. S., 209

Hardie and Gay  
translators, 40

Hegel, Georg  
internal teleology, 158

Hendel, Charles W.  
on Hume, 132, 133

Henderson, Lawrence, J.  
the order of nature, 68

Hobbes, Thomas  
Aristotelian teleologist, 125-26

Hormé  
*See* McDougall

Hume, David  
analogy, 105  
Berkeley, 133  
cause, 87n.  
design, 130-43  
evil, 138-39  
God, 139-40

Huxley, Julian, 161

Hypothesis  
ground of, 106

Instinct  
*See* McDougall

Intellect as finalized, 55-58

Interaction, 156-57

Jaeger, Werner  
Aristotle on design, 40-41  
the Greeks and order, 115

James, William  
and Dewey, 191  
on design, 2

Janet, Paul  
ambiguity in Kant, 152n.  
"as if," 155-56  
the question, 155

Jung, C. G., 178

Kant, Emmanuel  
"always conditioned," 154  
and Thomas Aquinas, 96, 98, 105-8  
"as if" purposeful, 144-45, 149-50, 156  
confusing the issue, 152  
"constitutive" and "regulative," 147-48  
design, 96  
how much proved, 150-51  
internal teleology, 156-57  
jump to cosmological-ontological, 153-54  
means and end, 95-96  
natural finality, 90  
nature of God, 147  
"no new Newton," 149, 151  
refuses "order," 91-92  
subjectivity, 153  
supreme mind as hypothesis, 148, 150  
the real, 54  
undesigned world, 2

Kepler, Johannes  
knowing God through nature, 120-21

Kierkegaard, Søren  
misery of man, 82-83

Köhler, Wolfgang  
confused on teleology, 214n.

Krutch, Joseph W.  
life's purposes, 3-4, 8

Lawrence, D. H.  
on goals, 9

Leibniz,  
finalist, 174

Le Roy, E.  
     internal teleology, 157  
     nature seeking ends, 113

Lewis, C. S.  
     natural law, 210  
     the issue, 4-5

Libido, 178

Life and final cause, 61-64  
     *See* McDougall, Sherrington, Woodger

Lillie, Ralph S.  
     "chance" and "casual," 93n.  
     teleology, 207-8

Locke, John  
     something always was, 87n.

Lyell, Charles, 167

MacKenzie, J. S.  
     on order and cosmos, 20n.

McDougall, William  
     emergent evolution, 182-83  
     ends and goals, 179  
     evolution, 181-83  
     hormé, 177-79  
     instinct, 179-81  
     teleology, 177  
     tendency, 181  
     transmission of acquired characters, 181

MacLeod, Robert B.  
     psychology and teleology, 214

Man and philosophy, 1

Mann, Thomas  
     meaning and purpose, 8

Mansion, M.  
     Aristotle and design, 39-40  
     the determinate, 86-87

Marling, Joseph  
     intrinsic principle, 112n.  
     order in nature, 111

Maritain, Jacques  
     self-evidence and sufficient reason, 80n.  
     "titanic demonism," 3

Marrou, H. I.  
     Aristotle's problem, 29n.

Marshall, John S.  
     Aristotle as normative for the West, 28

Marxism  
     negative reply, 202

Meaning  
     *See* Mann, O'Faolain, purpose

Mechanical philosophy  
     the new, 115-29

Mechanism as philosophy  
     ambiguous, 2  
     *See* Aristotle, McDougall

Metcalf, Maynard M.  
     plan and purpose, 204-6

Metcalf, Wilmot V.  
     plan and purpose, 206-7

Meyerson, Émile  
     nature of intellect, 56, 79  
     operational method, 161

Monstrosities, 77-79

Morgan, C. Lloyd  
     emergence, 183  
     evolution and purpose, 204

Muirhead, J. H., 191n.

Nagel, Ernest  
     on teleology, 213n.

Natura naturans, 47

Natural law  
     revival, 210-12  
     its claims, 210-11

Nature  
     distinct from will, 45, 45n.  
     tending to ends, 42

Naturalism  
     ends in nature, 213  
     mind directive of nature, 213  
     purpose in nature, 2-3, 5, 202  
     *See* Dewey

Necessity, 74, 85

Needham, Joseph  
     law of action, 79

Newton, Isaac  
     science and God, 128-29

Niebuhr, Reinhold  
     on history, 6  
     on purpose and meaning, 10-11, 116

Noyes, Alfred  
     evolution and purpose, 203

O'Faolain, Sean  
     on meaning, 82n.

Ontological causality, 106

## Order

- and God, 42, 81-114
- best thing in nature, 42, 214
- definition, 90-91, 110, 112
- general and particular, 77-79
- internal, 111-13
- See* Driesch, Kant

OSSIANDER, 119-20

## Pace, Edward A.

- on teleology, 80n., 90

## Pascal, Blaise

- greatness and misery of man, 82-83

## Perry, R. B.

- pathetic fallacy, 50

## Piat, Claude, 35, 35n.

## Plato

- aim of philosophy, 21
- chance, 25-26, 31
- chaos, 19
- cosmic purpose, 14-27
- evil, 23-24
- good, 25
- internal teleology, 156n.
- "mechanistic," 21
- necessity, 21-23
- purpose and God, 15-20, 23-25

## Philosophy

- aim, 21
- Christian, 81-82, 131, 146, 187

## Positivism

- inadequate, 210
- negative reply, 202

## Purpose

- a dual question, 10-11
- either-or, 8
- necessary question, 4, 10
- the question, 1-2, 6-7
- See* Aristotle, Darwin, Dewey, Kant, McDougall, Plato, Thomas Aquinas

## Ratner, Sydney

- on Dewey's teleology, 188-89

## Reductionism, 65

## Rignano, Eugenio

- life and finalism, 64

## Rivière, Jacques

- meaninglessness, 9

## Roland-Gosselin, M. D.

- self-evidence and sufficient reason, 80n.

## Ross, W. D.

- on Aristotle, 39-40, 89-90

## Russell, Bertrand

- on purpose, 3-4

## Russell, E. S.

- on teleology, 209

## Santayana, George

- on Dewey, 190, 201

- purpose, 2-3

## Secularism, 2, 5

- See* Dewey, naturalism

## Sellars, Roy Wood

- internal order, 113

## Sherrington, Charles

- goals, 209n.

- urge to live, 155n.

## Sin of man and of nature, 78

## Sinnott, Edmund

- on organic, 208-9

## Socrates

- philosophy of and for man, 1

## Spinoza, Baruch

- Aristotelian teleologist, 126-27

## Stout, G. F.

- continuity and interaction, 64-65

## Sufficient reason, principle, 80n.

## Taylor, A. E.

- on *Timaeus*, 19-24

- sham Aristotelianism, 117

## Teleology

- immanent, 156-57

- metaphysical elements, 109-10

- science, 118-19, 121, 176

- See* Aristotle, Bergson, Bosanquet, Copernicus, Dewey, Kant, Lillie, McDougall, Mac-Leod, Pace, Plato, E. S. Russell, Spinoza, Thomas Aquinas, Tsanoff

## Tennant, Frederick Robert

- analogical knowledge, 104

## Thomas Aquinas:

- "amor" of nature, 49-50

- and Aristotle, 42

- autotelism, 42-43, 111-12

- cause, 43-44

Thomas Aquinas (*continued*)  
 direction natural to will, 60-61  
 ethical position, 43  
 final cause, 42, 44-49, 51-52  
 final cause psychologized, 49-50  
 good in the effect, 101  
 internal teleology, 111-14  
 Kant, contrast with, 96, 98, 105-8  
 law of finality, 47  
 nature of intellect, 56-57  
 nature and will, 45-47  
 necessity, 47  
 object of vital tendency, 63  
 order and God, 82-111  
 teleology, 45  
 universality of final cause, 68

Thomson, J. Arthur  
 evolution and purpose, 204

Tolstoi  
 life and the good, 212

Tsanoff, R. A.  
 evolution and teleology, 175

Tufts, James, 187

Tychism, 39

Unity of the orderer, 114-15, 153-54

Vaihinger, Hans  
 "as if" philosophy, 145, 161-62

Visions  
 Aristotle's, 28  
 great modern, 28

Wallace, Alfred Russel  
 evolution and God, 171-73

Ward, James  
 anthropomorphism, 105

Ward, Leo R.  
 natural law revival, 210n.

Niebuhr's theology, 10

Watson, John, 178

Weiss, Paul  
 freedom and nature, 45n.

Wells, H. G., 161

White, William Allen, 11

Whitehead, Alfred North  
 basis of universal relations, 110n.  
 evil, 33  
 faith in rationality, 152-53  
 "sense of order," 115

Wild, John  
 on Berkeley, 131n.

Will  
 a nature, 45  
 and nature, 45  
 and final cause, 58-61

Woodger, J. H.  
 on teleological assumptions, 209-10



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